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IN THE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1958

STEDMAN MANUFACTURING COMPANY,
Petitioner,

v.

FRANK R. REDMAN and REDMAN PROCESS AMERICAN CORPORATION,
Respondents.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT

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Stedman Manufacturing Company, the defendant-appellant below, prays that a writ of certiorari issue to review the judgment of the United States Court of Appeals for the Fourth Circuit entered in the above-entitled case on July 17, 1958.

Opinions Below

The opinion of the Court of Appeals (Appendix, *infra*, A15-A28*) is reported at 257 F. 2d 867. The opinion of the District Court for the Middle District of North Carolina, Greensboro Division (App. A1-A11), is reported at 154 F. Supp. 378.

* The Appendix, printed herewith, is hereafter referred to as "App." Stedman's Appendix below, Vols. I, II and III have been designated here as Vols. I, II and III; Redman's Appendix Vols. I, II and III as Vols. IV, V and VI. Certain supplemental appendices and the proceedings in the Court of Appeals have been designated Vol. VII. References will be to the volume number and the page. "Tr." refers to the typewritten transcript of the hearing before the District Court.

Italics and brackets within quotes are ours unless the contrary is indicated.

Jurisdiction

The judgment of the Court of Appeals was entered on July 17, 1958 (App. A29). A timely petition for rehearing, filed on August 16, 1958, was denied on September 17, 1958 (App. A30). The jurisdiction of this Court is invoked under 28 U. S. C. § 1254(1).

Questions Presented

1. Whether one who is not a party to an action—*i.e.*, who neither is served with process nor intervenes—may be enjoined, directly and independently of the named defendant, on the ground that he controls the defense.

2. Whether the Court of Appeals misconstrued the governing decisions of this Court in holding patentable an old combination of old elements and steps merely because the claimant's apparatus and method improved, in degree, the old result.

Statement

1. Respondents, Frank R. Redman, the inventor, and his licensee, Redman Process American Corporation, brought this action on April 17, 1954, asserting infringement of Redman patents No. 2,597,528 (Claims 1-7) and 2,597,530 (Claims 1-3 and 5-13). (The patent numbers are hereinafter shortened, respectively, to '528 and '530).

The accused machines were leased to petitioner (defendant below) by Tubular Textile Machinery Corporation (hereinafter "Tubular") and Tubular openly assumed control of the defense (Vol. I, 5).

However, Tubular was never served with process and never became a party to the action. Nevertheless, the judgment of the District Court, affirmed by the Court of Appeals,

expressly assumes to enjoin Tubular, its directors, officers and agents "from using, or causing to be used, or actively inducing, or aiding and abetting others to use, a Tube-Tex Tensionless Calender in the manner heretofore used by defendant . . . and from in any other manner infringing" the claims in suit (App. A12-A14). This important aspect of the judgment, conflicting with the rule applied in similar situations by the Eighth and Second Circuits under this Court's decision in *Merriam* v. *Saalfield*, 241 U. S. 22 (1916) (*infra*, pp. 7-8), gives rise to the first question (*supra*, p. 2) presented by this petition.

2. All of the machines here involved—those of respondents' patents, those of the prior art, and the accused machines—undertook to cope with the long-existing shrinkage problem of tubular knitted fabrics—used for undergarments, athletic shirts and similar products—which results from the fact that those fabrics are stretched lengthwise while being processed. Tubular fabrics are knitted in long lengths with stitches which, generally speaking, are round. However, during processing—bleaching, dyeing, washing, etc.—the pulling of the fabric results in lengthwise elongation and corresponding widthwise narrowing. Unless this tendency is counteracted, the finished garment, after laundering, will tend to return to its original shape —*i. e.*, will shrink in length and expand in width (Vol. I, 64, c. 1, l. 33 through c. 2, l. 33).

Tubular, the lessor of the accused machine, had specialized for about twenty-five years in producing machinery for tubular knitted fabrics and had produced a series of machines designed, among other things, to restore the fabric tube to its original condition, and thus to reduce shrinkage in the finished garment (Vol. III, 639-650).

Over the years these Tubular machines, from the first, in the early nineteen thirties, to and including the accused machines, have represented a continuing development, but all of them have disclosed the same basic parts, operating in the same sequence and in the same basic way to accomplish the same end.

These parts are:

(a) a spreader, over which the fabric tube is continuously drawn and expanded widthwise, Vol. VII, 9, c. 2, l. 21 through p. 10, c. 1, l. 30; Vol. II, 396, p. 2, c. 2, ll. 46-60; p. 3, c. 2, ll. 11-68; Vol. I, 214, c. 5, ll. 3-47.

(b) feed rolls, which draw the tube to and over the spreader, Vol. VII, 9, c. 2, ll. 28-40; Vol. II, 396, p. 2, c. 2, ll. 61-63; Vol. I, 214, c. 5, ll. 34-44.

(c) take-off rolls beyond the spreader, which draw the tube from the spreader, Vol. VII, 10, c. 1, ll. 9-16; Vol. II, 396, p. 2, c. 2, ll. 46-51; Vol. I, 214, c. 5, ll. 72-74.

(d) change speed means, which operate the feed rolls at a greater speed than the take-off rolls, thus allowing the fabric tube to be advanced over and beyond the spreader with a minimum of longitudinal tension, Vol. VII, 7, c. 1, ll. 10-18, p. 11, c. 1, l. 62 through c. 2, l. 18; Vol. II, 396, p. 3, c. 1, ll. 20-27; p. 4, c. 1, l. 70 through c. 2, l. 12; Vol. I, 214, c. 5, l. 74 through c. 6, l. 4.

(e) steaming means, which, by heating the fabric tube, make it more plastic and workable, Vol. VII, 8, c. 2, l. 45 through p. 9, c. 1, l. 30; Vol. II, 396, p. 4, c. 1, ll. 37-43; Vol. I, 214, c. 5, ll. 48-64.

Against this background, the Redman '528 and '530 patents likewise dislosed

(a) a spreader (Vol. I, 64, c. 5, l. 24, through c. 6, l. 1),

(b) feed rolls (Vol. I, 64, c. 4, ll. 42-48),

(c) take-off rolls (Vol. I, 64, c. 4, ll. 42-48),

(d) change speed means (Vol. I, 64, c. 6, ll. 31-37), and

(e) steaming means (this element is not shown in the '528 patent and was first disclosed in the May 1, 1950 application on which the '530 patent issued: Vol. I, 66, c. 7, ll. 63-69).

Each of these five elements acted and interacted precisely as had the patentably identical elements of both

the earlier Tubular machines and the accused machines. The only difference lay in the fact that respondents' patents emphasized the practice of extreme widthwise spreading on respondents' spreader element (a) (Vol. I, 64, c. 3, ll. 26-42, 58-73; c. 6, ll. 6-13, 26-30; c. 7, ll. 4-7, 26-36). And in the District Court this wide-spreading characteristic was pressed by respondents, who repeatedly acknowledged that the accused machines, unless operated to spread the fabric wide, would *not* infringe (Vol. III, pp. 623-625, 861-862); and that the Tubular patents, under which the accused machines were made (Cohn patents Nos. 2,589,344 and '345; Vol. I, 214, 212), did *not* conflict with the '528 and '530 patents in suit, because "there is no wide-spreading disclosures in those [Tubular] patents" (Tr. p. 1522; see also pp. 1522-1523, 1531-1535).

This *extreme* wide-spreading, while broadly suggested by Tubular's prior art '001 patent (Vol. II, 396, p. 1, c. 1, ll. 33-37; p. 2, c. 1, ll. 3-7), was not specifically taught by that patent, or by Tubular's prior art '644 patent (Vol. VII, 2), or by the Tubular patents disclosing and covering the accused machine (Vol. I, 212, 214).

The District Court rejected petitioner's defense that the patents in suit were invalid because anticipated by the prior art, saying that "Little need be said on the defense of invalidity" (App., A1). The reason the Court so treated the "defense of invalidity" was that it believed that Redman had achieved a result* sought by all, but not found in the prior art (App., A3, A5-A6).

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* While the prior art Tubular machines, the machines of the Redman patents, and the accused Tubular machine reduced shrinkage in varying degree, none achieved the "result" which the District Court attributed to Redman, that is, none solved the shrinkage problem completely and there is no complete solution to this day (Vol. III, 739-741, 854, 930, 935, 944). In fact, though the '528 patent talked of reducing shrinkage to "less than 2%" (Vol. I, 64, c. 2, l. 52 through c. 3, l. 2), respondents' counsel admitted that garments treated according to the '528 and '530 patents still shrink around 10% (Tr., 1514-1515).

The same consideration controlled the decision of the t of Appeals. While its opinion shows there was sub- ial identity between the prior art Tubular machines he machines of the patents in suit (App., A18-A21), the Redman patents valid because it thought they hieved a greater degree of success in meeting the kage problem—that is, that they had achieved a result h had not been achieved by the prior art (App., A21. -A25).

Concentrating on the asserted improvement in result, Court of Appeals dismissed as insignificant (App., pp. A28) the technique of wide-spreading which had been d by respondents in the District Court as the central ient of infringement (*supra*, p. 5). Instead, the opinion ppeal signalled out what it called the "critical element" fabric-handling means permitting the fabric to relax" p., A18). Of the operation of this element, the Court her said:

> "This compression or relaxation of the fabric longitudinally while the fabric is spread laterally to the desired width in the finishing operations does not entirely eliminate the shrinkage of the laundered garments, but it reduces the shrinkage so markedly that it is accepted by the trade as a practical improvement of great value. It may seem to involve so small an advance over the control of longitudinal tension previously employed as to have been obvious to the industry, but actually it was only after a long period of experimentation that it was hit upon and then widely approved. Therein lies its patentability. A similar seemingly small step in the papermaking industry was recognized as invention in *Eibel Co.* v. *Paper Co.*, 261 U. S. 45" (*id.*, p. A26).

s is evident from this statement of the Court of Ap- s, its conclusion was bottomed upon a "small * * * ad- e" in a technique "previously employed"—"the con- of longitudinal tension"—because it reduced shrink- more markedly and was "accepted by the trade as a

practical improvement of great value." On this basis, citing the *Eibel* case, *supra*, as its sole authority, the Court of Appeals agreed with the District Court that respondents' patents were valid.

Reasons for Granting the Writ

Contrary to the governing principles established by this Court and followed by the Court of Appeals in other circuits, the court below has sustained an injunction against Tubular, which was never a party to the action, on the ground that Tubular controlled the defense. In addition, both misconceiving the decision in the *Eibel* case, *supra*, and ignoring later decisions of this Court, the Court of Appeals sustained the '528 and '530 patents solely because of an improved *result* achieved by the same means and the same method as had long been known to the art. The Court of Appeals thus permitted respondents to monopolize the prior art and stand athwart of the continuing improvements for which the industry has consistently worked.

Both of these holdings, we submit, merit consideration by this Court. Together, they make this a clearly appropriate case for resolving conflicts in the patent field which have arisen between the circuits and for correcting the increasing "liberality" with which patents have latterly been sustained despite the contrary thrust of this Court's teachings on the subject.

1. The judgment below erroneously enjoins a non-party.

On this point the decision below is contrary to *Merriam v. Saalfield*, 241 U. S. 22 (1916), and conflicts with decisions in the Eighth and Second Circuits.

As we have noted (*supra*, pp. 2-3), Tubular openly controlled the defense of this action, and continues to do so, but it was never served and never intervened. In *Merriam*

v. *Saalfield, supra*, this Court formulated the governing rule. There, Merriam sued Saalfield for unfair competition, and this Court accepted as a fact that Ogilvie had controlled the defense so as to be estopped by the judgment (241 U. S. 29). Nevertheless, this Court rejected the attempt, in supplemental proceedings, to bind Ogilvie *as a party*, saying:

> "It seems to be thought that because Ogilvie was identified in interest with the defendant in the original suit and had and exercised the right to make defense and control the proceedings and appeal from the decree, he may be treated for all purposes as an actual party to the record. But this by no means follows. The doctrine of *res judicata* furnishes a rule for the decision of a subsequent case between the same parties or their privies respecting the same cause of action. Obviously, the rule for decision applies only when the subsequent action has been brought" (241 U. S. 29).

Following the *Merriam* case, and squarely in conflict with the decision below, the decision of the Eighth Circuit in *S. S. Kresge Co.* v. *Winget Kickernick Co.*, 96 F. 2d 978 (1938), cert. den., 308 U. S. 557 (1939), held that a judgment against the infringer could not be extended to a non-party manufacturer which had assumed the defense. The court assumed that the non-party's role in the defense "was such as to make any determination against the defendant . . . binding upon it" (96 F. 2d 989). However, it went on to hold:

> "Even so the force thereof does not go beyond creating an estoppel in subsequent litigation between it and plaintiff concerning the same matters. This is merely to say that in some *subsequent* action the prior adjudication may be set up in estoppel as res judicata. It does not make [the manufacturer] a party to the prior suit" (96 F. 2d 989; italics in original).

To the same effect, and similarly in conflict with the decision below are *Alemite Mfg. Corp.* v. *Staff*, 42 F. 2d 832 (2d

Cir., 1930) and *Minneapolis-Honeywell Regulator Co.* v. *Thermoco, Inc.*, 116 F. 2d 845 (2d Cir., 1941).

We submit that the clear conflict of decisions, created by the departure of the court below from the governing rule established by this Court, calls for resolution on certiorari.

2. The decision below departs from the established standard of invention in holding patentable the improvement of a long sought result by old means.

The decision below will be searched in vain for anything new in respondents' machine or method. Dismissing the single trivia of wide spreading, upon which respondents had fastened in the District Court but which they understandably abandoned on appeal (*supra*, p. 6), the Court of Appeals found the "novelty" of respondents' claimed invention in its teaching of "simultaneously feeding the tubular fabric lengthwise with sufficient lengthwise freedom to permit such widthwise expansion of the fabric without subjecting it to any appreciable lengthwise tension" (App., A28). However, the Court of Appeals acknowledged elsewhere in its opinion that simultaneous widthwise expansion and lengthwise relaxation had long been taught by Tubular's prior art machines (*id.*, pp. A18-A21), and the record is replete with the evidence compelling this acknowledgment. The crucial point here is that there is no suggestion in the opinion of anything respondents built or taught which the opinion itself does not show to have been old in the art.

Thus, it becomes evident that the sole basis for the decision below is found in the fact that the Court thought that respondents had succeeded in improving, without achieving, the result of shrinkage elimination. And on this reed, observing that the improvement "may seem to involve so small an advance over the control of longitudinal tension previously employed as to have been obvious to the industry", the Court of Appeals found invention by analogy to the "similar seemingly small step in the papermaking industry * * * recognized as invention in *Eibel Co.* v. *Paper Co.*, 261 U. S. 45" (App., A26).

But, apart from the fact that the *Eibel* case, decided in 1923, surely went to the outer limits in the lenity of the standard of invention employed, it is clear that the lower court misconceived its rule, went far beyond it, and applied a standard of invention which cannot subsist with decisions like *Cuno Corp.* v. *Automatic Devices Corp.*, 314 U. S. 84 (1941); *Sinclair Co.* v. *Interchemical Corp.*, 325 U. S. 327 (1945); and *A. & P. Tea Co.* v. *Supermarket Corp.*, 340 U. S. 147 (1950).

The invention upheld in the *Eibel* case was a specific, identifiable physical change, which, while small, was made for a *novel* purpose previously not understood in the art. Pinpointing this vital factor, this Court noted that the innovation there was for "a different purpose" (261 U. S. p. 58) and was "directed toward a wholly different object from that of the prior art" (*id.*, p. 67). And, the Court went on:

> "The invention was not the mere use of a high or substantial pitch to remedy a known source of trouble. It was the discovery of the source not before known and the application of the remedy for which Eibel was entitled to be rewarded in his patent. Had the trouble which Eibel sought to remedy been the well known difficulty of too great wetness or dryness of the web at the Dandy roll and had he found that a higher rather than a low pitch would do that work better, a patent for this improvement might well have been attacked on the ground that he was seeking monopoly for a mere matter of degree. But this is not this case" (*id.*, p. 68).

But that *is* the case here. Here, the Court of Appeals said repeatedly that widthwise expansion with the avoidance of longitudinal tension marked respondents' advance (App., A17-A18, A26, A28). Yet, as has been shown, the opinion recognized that the prior art had employed precisely the same technique for precisely the same purpose (*id.*, A19-A21; Vol. VII, 7, c. 1, ll. 10-16; c. 2, ll. 29-34; Vol. II, 396, p. 2, c. 1, ll. 65-70; p. 4, c. 1, l. 74 through c. 2, l. 12; Vol. II,

insert opposite p. 572). And there is no suggestion here of any specific physical change made by the patents in suit and certainly no suggestion of any novel purpose which those patents had which might make this case comparable to the *Eibel* case.

In short, within the rule of *Eibel* alone, it is clear that respondents have been awarded mistakenly a "monopoly for a mere matter of degree" (261 U. S. at 68).

What is still clearer is that the decision below, in misapprehending the *Eibel* case, has adopted a standard of invention so low as to make patentable every trivial gadget and so low as to be irreconcilable with the standard of invention laid down in cases like *A. & P. Tea Co.* v. *Supermarket Corp.*, 340 U. S. 147 (1950). There, this Court stated the applicable law as follows:

> "Courts should scrutinize combination patent claims with a care proportioned to the difficulty and improbability of finding invention in an assembly of old elements. The function of a patent is to add to the sum of useful knowledge. Patents cannot be sustained when, on the contrary, their effect is to subtract from former resources freely available to skilled artisans. A patent for a combination which only unites old elements with no change in their respective functions, such as is presented here, obviously withdraws what already is known into the field of its monopoly and diminishes the resources available to skillful men. This patentee has added nothing to the total stock of knowledge, but has merely brought together segments of prior art and claims them in congregation as a monopoly" (*id.*, pp. 152-153).

Those conclusions apply here *a fortiori*. Here, the "congregation" as well as the "segments" were familiar in the prior art. Because respondents may have achieved better results is no more ground for granting them a monopoly on old means operating in the old way than a victory in an automobile race is ground for the winner's monopoly of automobiles.

Conclusion

The decision below is contrary to controlling decisions of this Court and conflicts with rulings by other Courts of Appeals. This petition should be granted.

Respectfully submitted,

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Opinion, U. S. District Court for the Middle District of North Carolina

HAYES, District Judge:

On May 20, 1952, F. R. Redman obtained the Patents in suit, No. 2,597,528 for an apparatus and No. 2,597,530 for a method of treating tubular knitted fabric to prevent the garment made therefrom from shrinkage [sic] after washing and laundering. These patents issued on an application filed October 22, 1948. Patent '528 may be called Redman's Normalizer and '530 the Normalizing. These patent rights are now owned by Redman with exclusive licensing rights vested in his co-plaintiff. While Stedman Manufacturing Co. is the defendant named as the user of the accused device, Tubular Textile Manufacturing Co. is the manufacturer and owner and lessor and is in charge of and conducting the defense and hereafter will be referred to as the defendant.

The defenses are (1) invalidity based on prior art and (2) non-infringement. Little need be said on the defense of invalidity. The knitting industry is an old and wide spread business. Practically all of the larger knitting companies are members of Underwear Institute which exists as an agency to promote the welfare of the industry. It is agreed that there existed a serious shrinkage problem in knitted fabrics before 1934. The fabric is knitted in courses and wales on a tubular head and the fabric is knitted into 100 yard lengths. After it is thus knitted, it is processed by washing, bleaching and dyeing and extracting. When the fabric got wet and heavy, the moving of it exerted a "pull" or "drag" which elongated the stitches and narrowed their width, thereby distorting the fabric. After it had been treated and dried to be cut into garments, it was discovered by the entire industry that the garments, after being worn and laundered, would shrink out of fit by drawing up in length and broadening in width. The problem was universally known and ways and means to solve the

problem were universally sought by the manufacturers and the manufacturers of knitting machinery.

Redman had obtained two patents and had an application for another patent pending dealing with the problem, but they are not involved here. He had copyrighted the name "Redmized" [sic]. In 1944 the Underwear Institute became interested in the Redman inventions. It appointed a committee of mechanical experts from the larger knitting companies to investigate them and make recommendations. Pursuant thereto negotiations with Redman culminated on May 1, 1945, in a written trust agreement between Redman and Trustees named by the Underwear Institute. The important features of the agreement were: Transfer by Redman to the Trustees of his patents and pending application, *also any patents or applications for patents made by him during the life of the contract;* [emphasis by the Court] he was to be employed by the Trust at $12,000.00 per annum and use his knowledge in the development, improvement and commercialization of the apparatus and process to overcome shrinkage in knitted fabric; the Trust would grant licenses and collect fees; employ counsel and procure machinery to carry out the objects of the Trust; it was to secure $75,000.00 in contributions from knitting companies and do all of the needful things to develop and commercialize Redman's inventions. The document enumerates in its 26 pages the obligations and benefits respectively of Redman, the Trustees and the contributors and licensees.

There were 59 contributors among knitting companies whose contributions during the life of the contract amounted to $121,500.00. It is significant that among the manufacturers who contributed $5,000.00 or more were Atlas Underwear Co., William Carter Co., Gibbs Underwear Co., P. H. Hanes Knitting Co., Utica Knitting Co. and Wilson Brothers. Even Munsingwear, who had wrestled with the

problem since 1934 and had obtained some patents relating thereto, contributed $3,000.00. The voluminous record is replete with written documents from 1945 to 1950, when the Trust was terminated, which show the struggle to solve the problem and the experiments and progress made by the Trust, including Redman, culminating in the application #55,963, on Oct. 22, 1948, on which the patents in suit issued.

Having spent three weeks in the trial and observing the machines demonstrated and that much time studying the record, briefs and requests, the court is thoroughly satisfied that there is novelty in both patents in suit and that the claims in suit are valid. The innumerable publications and patents relied on by the defense do not constitute anticipation nor teach the art involved in the patents in suit. If these documents, one or all of them combined, taught or suggested, the Redman invention to those skilled in the art, as is now so earnestly advanced by the defendant, it is surpassingly strange that none discovered it when all were diligently seeking it and why the leaders in the industry resorted to such frantic efforts for the solution of this long standing problem. *Rohm and Haas Co.* v. *Roberts Chemicals*, (4cca) F. 2d 693, 697; *Otto* v. *Koppers Co.*, (4cca) 246 F. 2d .....

The Trust was dissolved 9th of Dec. 1950, due to some of the manufacturers leasing the accused device from the defendant. The Underwear Institute and the Trustees recognized that the accused device competed with the Redman patents and pending application, and that infringement would be involved; that the institute and the Trustees could not protect the Redman rights with the possibility of having to sue its members. It sought and obtained Redman's consent to dissolve the Trust and all patent and all trade mark rights were transferred to Redman. It is clear that the manufacturers were eager to get into operation at

nion, U. S. District Court for the Middle District of North Carolina

arliest moment a machine and method could be ob- d which would produce knitted fabrics that would not k out of fit.

spite of the contention of the defendant to the con- the accused device constitutes infringement of the alizer of '528 patent and the process infringes the s of '530 patent in suit.

e accused device used by Stedman produced the sam- ken by Pressnell [sic], Worthington and Lawson and eration constituted a normalizer as described and d in the '528 patent in suit and the method employed cessing these samples constituted a normalizing op- n under the Claims of the '530 patent.

im 1 of the '528 which is copied as foot note[1] is typical others. The accused device has means (belts) for the tubular knitted fabric lengthwise through a t zone while affording lengthwise freedom of the Its frame and pulleys of the propeller are within tment zone and operate to internally expand the fabric widthwise to effect lengthwise shortening tension on it lengthwise and means are employed it the fabric to relax and to reposition the stitches neir distorted shape while processed back to their

---

[1] paratus for reducing shrinkage in tubular knitted fabric as been elongated lengthwise and narrowed widthwise by ng subsequent to knitting of the fabric; comprising means ing the tubular knitted fabric lengthwise through a treat- e while affording lengthwise freedom of the fabric, means d zone for internally expanding the tubular fabric width- ffect lengthwise shortening or condensing of the fabric, -handling means permitting the fabric to relax, whereby epositioning of the fabric stitches substantially to their nitted form and restoration of the fabric substantially to l condition.

substantial shape after being knitted and before the processing operation.

In like manner Claim 1 of patent '530 is typical. See foot note[2]. In the accused device the belts operate to move the tubular knitted fabric lengthwise through a treatment zone while providing lengthwise freedom of the fabric. As the fabric moves through this treatment zone, the fabric is expanded widthwise by the frame and pulleys of the propeller adjusted sufficiently wider than the width of the fabric as it entered the process to effect lengthwise shortening (condensing) of the fabric. Thereafter the finishing rolls and roll-up rolls operate to permit the fabric to relax both in width and in length. These steps of moving the fabric in the treatment zone with lengthwise freedom while being internally expanded widthwise to shorten and condense the fabric, then providing means for the fabric to relax freely, constitute, in their combination of methods, the restoration of the stitches both widthwise and lengthwise to their original knitted form and thereby restores the fabric substantially to its normal condition, thereby effectively overcoming the contortion of the stitches and of the fabric caused by processing after leaving the knitting head.

The defendant set up 31 U. S. and foreign patents and printed publications and several prior uses to show antici-

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[2] A method of reducing shrinkage in tubular knitted fabric which has been elongated lengthwise and narrowed widthwise by processing subsequent to knitting of the fabric, and the stitches of which are distorted lengthwise and widthwise, said method comprising moving the tubular knitted fabric lengthwise through a treatment zone while providing lengthwise freedom of the fabric, internally expanding the tubular fabric widthwise within said zone to effect lengthwise shortening or condensing of the fabric, and permitting the fabric to relax, whereby to effect repositioning of the stitches substantially to their original knitted form and restoration of the fabric substantially to its normal condition.

pation or lack of invention in the subject matter of the two Redman patents in suit. But they do not disclose or embody the Redman inventions. They relate to mill shrinkage and controls to avoid waste in producing garments but fall far short of eliminating or teaching how to eliminate shrinkage after wearing and laundering. It must be borne in mind that this is the invention of the patents in suit. It is definitely and conclusively established that the prior art utterly failed to accomplish this result. Defendant's expert was unable to name any one prior art which more nearly anticipated the patents in suit.

It is appropriate to quote what Judge Parker so well said in *Reynolds* v. *Whitin Machine Works*, 167 Fed. 2d 73 at page 83:

> "Defendant has cited 21 patents as basis for its contention that complainant's invention is lacking in novelty; and this in itself is evidence of the weakness of the contention. Such a citation of so many prior patents almost always means either that none of them are in point and that the patentee has brought together for the purpose of his inventions devices to be found in prior patents of different character, or that there have been prior attempts to solve the problem with which he was confronted which have not met with success. * * * Patents for useful inventions ought not be invalidated and held for naught because of such excursions into the boneyard of failures and abandoned experiments."

The Chief Engineer of Tubular Textile Machinery Corporation, Jules G. Walters, and Eugene Cohn and Samuel Cohn, Executive officers of the corporation, on December 10, 1949 filed application for patent covering their alleged inventions for method of and apparatus for treating tubular textile fabrics which culminated in patent 2,589,344. What

they said then covered the state of the prior art, excluding the patents in suit, as follows:

> "This invention relates to the treatment of tubular textile fabrics and *particularly to a novel method of preshrinking and setting such fabrics so that the garments made therefrom will not be subject to further substantial shrinkage as the result of laundering.*"

Then it describes the state of the Art and the standard processing procedure which utilized longitudinal tension, and said:

> "*Because of the longitudinal tension which is maintained throughout the steam treatment, no shrinkage is permitted, and consequently the finished fabric is subject to shrinkage when* laundered."

The next two paragraphs of that patent are very significant and are:

> "It is the object of the present invention *to provide a method of and apparatus for treating tubular textile fabric whereby the fabric is longitudinally compressed before, during or after steaming and is not therefore subject to substantial shrinkage as a result of laundering, an object which has long been considered desirable but heretofore has not been obtainable in the treatment of tubular textile fabrics.*"
>
> "*Another object of the invention is the provision* of *a method of and an apparatus for setting the stitches of a tubular textile material in their natural form and contour and free of internal stress, with a reduction in the inherent residual shrinkage so that garments made therefrom are not subject to* modification by substantial shrinkage." The court has supplied the underscoring. [Matter underscored by the Court here reproduced in italics.]

Although the foregoing patent issued March 18, 1952, it is not prior Art to the filing of plaintiff's application on Oct. 22, 1943 on which patent '528 and patent '530 issued although the issuing date was May 20, 1952. While application No. 159,296 was filed May 1, 1950, the subject matter of the co-pending application No. 55,963 was divided and was a continuation-in-part thereof.

The defendant contends that plaintiff learned about defendant's method and adjusted his claims to embody defendant's method. The plaintiff contends that the defendant obtained knowledge of plaintiff's invention and appropriated it and tried to beat him in filing an application. Tedious and careful consideration has been given to these contentions. Here again the evidence convinces the court that the defendant's contention is not sustained but that the evidence impels a finding in favor of the plaintiff's condition.

The Redman apparatus and method were demonstrated at an open house of the industry (knitting) in Spring City. on April 29, 1948. It is true that Eugene Cohn testified that no one connected with his company attended, yet he admits he was told about it by several of his customers. Ex. 73 which is an office memorandum dated June 28, 1948, Eugene Cohn to Mortimer Cohn, records the information Eugene obtained from Niel at Nazareth. This at least discloses the extreme spreading of the fabric after it has been bleached and extracted. It also discloses that the operation is without tension, allowing the cloth to lie in ripples (relaxed) while drying. Ex. 73C is a letter dated Dec. 23, 1948 from Flagg Knitting Co., to Tubular Textile Machinery Corp. and enclosed a clipping from Journal of Commerce from which a part is quoted:

> "Utica—Dec. 20. Six Underwear Mills have already signed lease agreements for the new Redman Shrink-

> ing Machine at a cost of $40,000.00 each. President Roy A. Cheney of the Underwear Institute told a meeting this weekend of local manufacturers."
>
> "The new pre-shrinking machine produce 800 pounds of fabric an hour, shrinking it and drying it. While the average shrinking of underwear in washing machines has been determined by the Bureau of Standards to be from 17 to 18 per cent, the new Redman machines have held shrinking to 3 to 4 per cent, Mr. Cheney said."

On January 3, 1949, a memorandum was sent from M. C. to E. C. and J. C. (Ex. 73B), subject Redman Process, in which he referred to the clipping and its contents and said:

> "I would like you to see this clipping and to then promptly discuss with me steps to be taken and to further investigate what is cooking in this situation."

The next memorandum is dated 6/8/50 from J. C. to E. C. telling of information from Mr. Lowery of E-Cut Knitting Mills, only part of which bears on this subject:

> "I asked him about the Redman Process and he told me that the machine in Spring City is working nicely and that E-Cut is getting some very nice results on their own cloth from the Redman Process. He also told me that the Redman machine up at Glendale, N. Y. which is Perry Knitting, is also running and he told me that the third machine for Pottsville Bleach and Dye is now at Pottsville on a siding ready to be installed."

On June 22, 1950, a memorandum is sent from J. G. W. (Walters chief Engineer of Tubular, etc.) to J. C. (Joseph Cohn) on subject of Redman Head. This memorandum,

Ex. 74, consists of four pages, single space typewritten details. The first paragraph starts with this sentence:

> "Attached hereto is drawing D3-95 in duplicate showing the system and apparatus that Redman uses for 'normalizing' his fabric."

Later he states:

> "From the moving pictures that we saw at the show these rolls # 1 are obviously driven."

Later he states:

> "Pop feels that we should go back to patent 2,228,001, issued January 7, 1941, Claim # 6 which he claims is an excellent Claim on what Redman is doing as shown in the movie."

After discussing the problems presented by the Redman Head, it said:

> "It is Pop's thought that possibly we could obtain some patent protection on a head similar to Redman's by adding belts such as shown in the sketch to his head or at least to exhaust the possibilties of propelling cloth by belts by these means."

The evidence shows that defendant was appropriating to its use the Redman inventions instead of Redman appropriating to himself the alleged inventions of Cohn and Walters. There is no question that Claims 1, 3 and 7 to 11 inclusive of '530 patent read on and find full response in the application # 55,963, filed Oct. 22, 1948 and the patent is entitled to that filing date. *Davis* v. *Baker-Cammack Hosiery Mills*, 86 F. Supp. 180, 186, affirmed 4 cca 181 F. 2d 550, 558.

Opinion, U. S. District Court for the Middle District of North Carolina

The first tensionless calender was a sample machine for demonstration purposes and retained by it. This machine was shown to Dunmore of Utica and King of Munsingwear during April, 1949. Defendant offered to build machines substantially like the sample and to lease them. The first order was received May 29, 1949. Thereafter the machine was built. Thus the first order and the first machine for the market occurred subsequent to May 1, 1949 or within one year of the last application filed May 1, 1950. Even that machine had to have the bouncer [sic] roll added in August. The sample as such was incomplete and did not constitute public use or offered for sale within the statute. *Sturdevant* v. *Massachusetts Hair and Felt Co.*, 124 F. 2d 95, 97, Cert. den. 315 U. S. 823; *Rohn and Haas Co.* v. *Roberts Chemicals*, 4 cca decided May 27, 1957, 345 Fed. 2d 693; *Long Manufacturing Co.* v. *Holliday*, 4 cca 245 Fed. 2d ———

Stedman Manufacturing Co. has infringed the patent claims in suit by using the accused device and Tubular Textile Machinery Corporation has also infringed the patent Claims in suit by making and leasing to Stedman for use in this district the accused device. The latter company has assumed, controlled and conducted the defense of Stedman in this case pursuant to its contract with Stedman and is therefore bound by the judgment herein. *Baker-Cammack* v. *Davis Co. Supra; Aghnides* v. *Kress and Co.*, 140 F. Supp. 582, 587; affirmed —— Fed. 2d ——. Judgment in acordance herewith will be entered.

This the 23rd day of September, 1957.

s/ JOHNSON J. HAYES,
United States District Judge.

Judgment, U. S. District Court for the Middle District of North Carolina

THIS CAUSE came on to be tried before the Court, sitting without a jury, and the Court having considered the evidence introduced by the parties, including stipulations, depositions, exhibits, and the entire record in the cause, as well as the briefs and arguments of counsel for the respective parties; and the Court having heretofore made and filed its Findings of Fact and Conclusions of Law, as the same appear of record, which are made a part hereof by reference thereto;

IT IS, THEREFORE, ORDERED, ADJUDGED AND DECREED as follows:

1. That this Court has jurisdiction of this cause and of the parties hereto. Tubular Textile Machinery Corporation, Woodside, Long Island, New York assumed the complete defense of this cause, both monetarily and by the selection of defendant's attorneys.

2. That United States Letters Patent No. 2,597,528 were duly and lawfully issued to the plaintiff Frank R. Redman on May 20, 1952, and that plaintiff Frank R. Redman is the sole and exclusive owner of the entire right, title and interest in and to said Letters Patent, together with all rights of action for past infringement thereof.

3. That United States Letters Patent No. 2,597,530 were duly and lawfully issued to the plaintiff Frank R. Redman on May 20, 1952, and that plaintiff Frank R. Redman is the sole and exclusive owner of the entire right, title and interest in and to said letters patent, together with all rights of action for past infringement thereof.

4. That the plaintiff Redman Process American Corporation is exclusive licensee under said Letters Patent No. 2,597,528 and No. 2,597,530, with the exclusive right to grant sublicenses thereunder.

Judgment, U. S. District Court for the Middle District of North Carolina

5. That said Letters Patent No. 2,597,528 are good and valid in law as to claims 1, 2, 3, 4, 5, 6 and 7 thereof, being all of the claims in issue herein.

6. That the defendant Stedman Manufacturing Company has infringed each of claims 1, 2, 3, 4, 5, 6 and 7 of said Letters Patent No. 2,597,528 by its use of the Tube-Tex Tensionless Calender manufactured by and leased to the defendant by Tubular Textile Machinery Corporation, Woodside, Long Island, New York.

7. That said Letters Patent No. 2,597,530 are good and valid in law as to claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12 and 13 thereof, being all of the claims in issue herein.

8. That the defendant Stedman Manufacturing Company has infringed each of claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12 and 13 of said Letters Patent No. 2,597,530 by its use of the Tube-Tex Tensionless Calender manufactured by and leased to the defendant by Tubular Textile Machinery Corporation, Woodside, Long Island, New York.

9. That the defendant Stedman Manufacturing Company, its directors, officers, associates, agents, attorneys, confederates, and employees, and those in active concert or participation with them, who receive actual notice of the Judgment and Injunction by personal service or otherwise, be and they are hereby perpetually restrained and enjoined from using, or causing to be used, the Tube-Tex Tensionless Calender as heretofore used by defendant in the reduction of shrinkage in tubular knit fabrics, and from in any other manner infringing upon claims 1, 2, 3, 4, 5, 6, and 7 of said Letters Patent No. 2,597,528 and claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12 and 13 of said Letters Patent No. 2,597,530, or any of them.

10. That Tubular Textile Machinery Corporation, its directors, officers, associates, agents, attorneys, confeder-

ates, and employees, and those in active concert or participation with them, who receive actual notice of this Judgment and Injunction, by personal service or otherwise, be and they are hereby perpetually restrained and enjoined from using, or causing to be used, or actively inducing, or aiding and abetting others to use, a Tube-Tex Tensionless Calender in the manner heretofore used by defendant in the reduction of shrinkage in tubular knit fabrics, and from in any other manner infringing upon claims 1, 2, 3, 4, 5, 6 and 7 of said Letters Patent No. 2,597,528 and claims 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12 and 13 of said Letters Patent No. 2,597,530, or any of them.

11. That the plaintiffs Frank R. Redman and Redman Process American Corporation shall have and recover from the defendant Stedman Manufacturing Company the damages which the plaintiffs have sustained by reason of the aforesaid infringement by defendant.

12. That this cause shall be referred to [Hon. Rufus Reynolds] as Special Master to ascertain the damages adequate to compensate the plaintiffs for the infringement by defendant Stedman Manufacturing Company.

13. That the plaintiffs recover of the said defendant the taxable costs of the plaintiffs in this suit incurred against them and such costs and expenses as may be incurred by the Special Master in connection with his services herein, and that the plaintiffs shall have judgment and execution against the defendant for said costs.

Entered this 23rd day of September, 1957.

s/ JOHNSON J. HAYES,
U. S. D. J.

Opinion, U. S. Court of Appeals for the Fourth Circuit

No. 7563

(Reargued April 23, 1958. Decided July 17, 1958.)

Before SOBELOFF, Chief Judge, and SOPER and HAYNSWORTH, Circuit Judges.

SOPER, Circuit Judge:

This suit for patent infringement is based on two United States Patents issued to Frank R. Redman on May 20, 1952, which relate to an apparatus and a method for treatment of tubular knitted fabrics, that is, patent No. 2,597,528 which was applied for October 22, 1948, and patent No. 2,597,530 which was applied for May 1, 1950. Patent '528 covers the apparatus and patent '530 the method of operating the apparatus. The suit was brought by Frank R. Redman and Redman Process American Corporation, the exclusive licensee of the patents, against Stedman Manufacturing Company of North Carolina, which is accused of infringing the patents by the use of a machine, called a "Tube-Tex Tensionless Calender." This machine was leased by it from the Tubular Textile Machinery Corporation of New York (hereinafter called "Tubular Corporation") which is defending the suit. This appeal is taken from a judgment of the District Court wherein both patents were held valid and infringed by the defendant.

Tubular knitted fabrics are used in the manufacture of such garments as T-shirts, children's sleepers, athletic undershirts and polo shirts. In general terms, the purpose of the patents is to eliminate as far as practicable the shrinkage of the garments when they are laundered. For many years the knitting industry had recognized that excessive

shrinkage occurred when garments of this sort are laundered and many efforts have been made to solve the problem. Redman claims that his patents provide a means and method for obtaining a fabric which is pre-shrunk to such an extent that the residual shrinkage of the manufactured garment when it is laundered has been reduced to a minimum. The defendant on the other hand contends that every element of the Redman apparatus had been previously employed in the art, and that the claims of the patent are so broad that they cover all pre-existing apparatus of the prior art and are not confined to the structure disclosed by the patents. It is further said that the Redman patents are distinguished from the prior art only in extreme width-wide stretching of the knitted material when it is treated, and that this element is not included in the claims and is not used by the defendant.

The problem which the patentee sought to solve was caused by the inherent characteristics of the tubular knitted fabric. Under the standard practice it is knitted under tension in lengths of 100 or more yards in such fashion that the stitches are loop shaped. When the fabric is stretched in length it becomes narrower in width and when it is expanded in width it becomes shorter in length. After the knitting operation is completed the fabric is subject to several wet-processing steps, under which its shape is distorted. It is pulled longitudinally under severe tension through a wet-scouring solution, then through a bleaching or dyeing solution between rollers, and then through a wash and an extractor. During this treatment the fabric is in a soft, wet and elastic state and the stitches are elongated and narrowed from the shape they had after knitting and the fabric as a whole is distorted. Later, when it is dyed and pressed between rollers in a calendering operation at the desired width, it becomes set in this distorted condition and, when it is used in the manufacture of garments and they are subsequently laundered, the distorted stitches of

the fabric return to their original relaxed condition and excessive shrinkage occurs. The purpose of the operation described in the patents is to "normalize" or restore the fabric and its component stitches or loops after the processing operations to the original undistorted condition so that the residual shrinking upon laundering is reduced to a minimum or to a small unobjectionable percentage. In this way a preshrunk knitted garment is obtained.

The apparatus depicted by the Redman patents shows the course which the material follows after it has been elongated and narrowed in the wet-processing steps. The fabric is drawn over rollers, whereby it assumes a generally flattened form, and thence it is carried by power-driven feed rolls to a spreader, consisting of a series of expanding wheels, to a take-off roller of relatively large diameter, and thence it goes to a conveyor, which transports it through a drier. As the fabric moves from the feed rolls over the spreader it is relaxed and is free lengthwise so that the stitches flow freely during the expansion. The large take-off roller moves at a slower speed than the drive rolls so that the fabric is carried away without appreciable tension and is deposited on a conveyor in a relaxed condition. The conveyor which draws the material through the drier moves at a slower speed than the take-off roll so as to permit relaxation of the fabric. The result is that the fabric is not pressed and set but has freedom both lengthwise and widthwise and the stitches are free to flow and return to their original knitted form.

Throughout the specification the emphasis is placed upon the "normalization" of the fabric by returning it substantially to the unstretched condition which prevailed after it was knitted and before it was processed. This is accomplished by feeding the fabric lengthwise with sufficient freedom to permit widthwise expansion without subjecting it to appreciable lengthwise tension. The figures of the

tents indicate the relaxation of the fabric by showing at it is disposed in loose folds lengthwise as it passes om the driving rolls to the take-off rolls and also in pass- g from the take-off roll to the conveyor upon which it is posited in a relaxed condition. The "normalizing" proc- s takes place as the fabric is advanced through the ap- ratus in this manner.

Claim 1, which is a typical claim in the patent, is as ollows:

> "1. Apparatus for reducing shrinkage in tubular knitted fabric which has been elongated lengthwise and narrowed widthwise by processing subsequent to knitting of the fabric, comprising means for moving the tubular knitted fabric lengthwise through a treatment zone while affording lengthwise freedom of the fabric, means within said zone for internally expanding the tubular fabric widthwise to effect lengthwise shortening or condensing of the fabric, and fabric handling means permitting the fabric to relax, whereby to effect repositioning of the fabric stitches substantially to their original knitted form and restoration of the fabric substantially to its normal condition."

The critical element in this claim is expressed in the hrase "fabric-handling means permitting the fabric to elax."

A great many prior patents were cited against the Red- patents in the District Court but on this appeal the ndant has simplified the issue of validity by confining self to a single machine which was developed by the Tubular Corporation and has been used extensively by its ustomers for more than twenty years. It is shown in detail n two United States patents owned by Tubular, which were issued to S. Cohn *et al.*, namely, patent No. 2,187,644

issued January 16, 1940, and patent No. 2,228,001 issued January 7, 1941. The contention is that the disclosures of these patents invalidate the patents in suit.

Patent '644 discloses an apparatus which provides means for steaming the tubular fabric and then finishing it over a spreader whereby the fabric is distended to the desired width, and then it goes through a second steaming and is carried to the finishing rolls where it is pressed flat and set at the width to which it has been spread. After this has been done the fabric is wound on a roll.

The stated purpose of the patent is to provide uniformity of the knitted material by producing a flattened fabric tube of the desired width free from excessive or irregular longitudinal or transverse shrinking so that the longitudinal extension with relation to the transverse distention as well as the shrinking attendant upon the finishing operations may be controlled. The fabric attains and retains the final permanent width and length when it passes the finishing rolls and is wound up.

The spreader is adjusted so as to attain a predetermined width. It consists of a frame equipped with rollers which are driven so as to propel the fabric toward the finishing rolls. Since the material tends to shorten in length as it is spread, the speed of the propellers is adjusted in relation to the speed of the finishing rolls so as to avoid excessive tension of the material between the propelling and the finishing rolls. Thereby the proper relation between width and length is maintained and a uniform number of yards per pound is produced.

Patent '001 discloses the same relation of parts for the same purposes as is disclosed in patent '644. It was designed as an improvement over the machine of patent '644 and is known as the Tubular Straight Line Calender. The spreader of the '001 patent advances the fabric not merely by the co-action of the propeller rolls and the finishing

rolls, as in patent '644, but also by co-action between the propeller rolls and moving belts which extend over the outside face of the spreader so as to eliminate distortions between the marginal edge and the center portions of the fabric.

The speed between the spreader drive rolls and the pressure rolls is regulated to control the longitudinal tension of the fabric so as to give the fabric a predetermined width. The transverse tension, however, is largely determined by the width of the spreader and a variation in the ratio between longitudinal and transverse tension and involves merely a variation in the longitudinal tension. The purpose is to secure a specified width and length for a given weight of the material so as to attain a desired yield of the fabric for the manufacture of garments.

It is contended that these prior patents disclose the essentials of the patents in suit and especial emphasis is placed upon the references to variations in speed which is maintained between the sets of rollers so as to regulate the longitudinal tension upon the fabric as it is drawn through the machine. One important purpose was to eliminate as far as possible the shrinkage of the fabric during the finishing operations which had greatly troubled the industry. Thus, in patent '644 it is said that the finishing rollers are preferably operated somewhat more slowly than the propellers so that the shrinkage which takes place in the fabric during the steaming operation may be compensated by an excess delivery of fabric at the place of initial propulsion; and in patent '001 it is said that the method includes the regulation of longitudinal tension relative to transverse tension and in particular the substantial or complete elimination of longitudinal tension especially in operations involving fabric shrinkage.

These passages from the patents obviously relate to what is called mill shrinkage which occurs during the fin-

ishing operations and not to shrinkage of articles manufactured from the fabric. However, the patents also make some reference to shrinkage of the latter sort. Thus, in patent '644 it is said that during the processing operations the fabric is enabled to shrink and to establish what may be called its natural proportions in width and length and thus treated will hold its dimension and can be cut into garments which will hold their shape after laundering.

Again in patent '001 it is said that one of the advantages of the patented process is that the fabric will not change its proportions after washing in the manner or to the extent theretofore considered inevitable.

The evidence in the case, however, demonstrates quite clearly that the harmful shrinkage of garments made from the fabric *after it was processed* in these machines was in fact not eliminated. It was known that as the fabric came from the knitting machines the stitch was round but that it changed to an elongated or elliptical form after processing and then after laundering the stitch tended to return to a round shape. All are agreed that the problem had existed for many years and it was conclusively shown in the trial below that it still existed as late as 1949. In other words, the problem still persisted in spite of the structures described in the Cohn patents. This was shown not only by the testimony of witnesses experienced in the trade but by statements emanating from the Tubular Corporation itself, which is defending this suit.

Much evidence on this point was taken in the three weeks trial in the District Court. Sufficient confirmation of the persistence of the difficulty is found in the interest taken in the subject by the Underwear Institute, a trade organization in which a majority of the manufacturers of knitted underwear in the United States are members. The opinion of the District Judge shows that in 1944 the Institute became interested in the Redman inventions and

appointed a committee of mechanical experts from the larger knitting companies to investigate and make recommendations. The result was that the Institute entered into a trust agreement with Redman whereby he transferred his patents and applications for patents to trustees and was employed at a salary of $12,000 annually to continue his efforts to develop an apparatus which would avoid shrinkage of the garments made from tubular fabric. The trustees were empowered to grant licenses under the patents and collect fees. Contributions amounting to $121,500 were solicited and received from fifty-nine knitting companies to promote the work. It culminated in the filing on October 22, 1948, of the application on which the patents in suit were issued.

The first public demonstration of the Redman apparatus took place at an open house of the knitting industry on April 29, 1948, which was attended by between two and three hundred men. Between May 1948 and July 1949 fabrics were processed on the experimental machine in forty-five different mills. In the year beginning December 1949, the trustees issued a total of fifteen licenses to various knitting mills.

Meanwhile, in July 1949, the Tubular Corporation delivered the first of its accused machines, and by the end of that year leased twelve of them to various leaders in the knitting industry. This situation led to a dissolution of the Redman Trust. Since the licensees of the Tubular Corporation were members of the Underwear Institute it was confronted with the possibility of litigation involving charges of infringement of the Redman patents by certain of its own members. Accordingly, the Trust was dissolved in May, 1951 and the patents were turned back to Redman. The Institute notified its members of the dissolution of the Trust and announced that it took pride in the fact that the contributors to the Trust were the first in the field to

sponsor and develop methods of pre-shrinking for knit fabrics. At the time of the trial in the District Court twenty-five licenses had been granted under the Redman patent to well known knitting mills in various parts of the country. The total payments by the licensees and the total poundage of fabrics manufactured under the patents amounted to substantial sums.

Under these circumstances a controversy has arisen as to whether Redman or the Tubular Corporation was the first to devise the apparatus to solve the problem. The defendant contends that the plaintiff first learned of its method and adjusted his claims accordingly, while the plaintiff claims that the defendant developed its machine through knowledge of the plaintiff's invention. This controversy was given careful consideration by the District Judge, who reached the conclusion that the evidence compelled a finding in favor of the plaintiff. The judge found that the Redman demonstration was made publicly in the presence of large numbers of the leaders of the industry and that information as to what occurred at the meeting was communicated to the Cohns. We are satisfied, from an examination of the record, that this conclusion is supported by substantial evidence. It is noteworthy that the application on which the patents in suit was based was filed October 22, 1948, prior to the two applications covering the new method which were filed by Cohn after the public demonstration of the Redman apparatus. These applications were filed on December 10, 1949 and January 4, 1950, respectively, and led to patents No. 2,589,344 and No. 2,589,345 which, as we shall see, cover the accused machine. The Judge correctly found that the disclosures of these later Cohn patents are not prior art references against the patents in suit.

There is additional striking evidence proceeding from the Tubular Corporation itself which shows that the machines of the earlier Cohn patents did not obviate the

shrinkage of the laundered garments. In the specification for the later Cohn patent '344, the patentee described the prevailing method of processing the fabric by steaming and calendering operations and pointed out the unsatisfactory results in the following words: "Because of the longitudinal tension which is maintained throughout the steam treatment, no shrinkage is permitted, and consequently the fabric is subject to shrinkage when laundered."

A similar comment on the excessive shrinkage which was attendant upon the earlier operations is described in the following passage in the specification of the Cohn patent '345:

> "It is the object of the present invention to provide a simplified method of and apparatus for finishing tubular textile fabric whereby the fabric is spread, propelled, steamed and wound upon a roll and whereby the fabric is longitudinally compressed during the finishing operation and is not therefore subject to further substantial shrinkage. This object has been needed in the industry but never heretofore obtainable."

Again, in the proceedings in the Patent Office upon the application for Cohn patent '345, the patentee, in endeavoring to show that his invention was not anticipated in his prior patent '644, made the following statement:

> "• • • It is true that in the patent (No. 2,187,644) the fabric is advanced at differential speeds so that there is some relaxation of the longitudinal tension on the fabric. However, this is merely for the purpose of compensating for shrinkage during the steaming operation, • • •
>
> • • •
>
> "The fact is that the apparatus described in patent No. 2,187,644 was intended merely to relax the

longitudinal tension sufficiently to permit shrinkage when the steam was applied, but there was no intention in this structure, nor is any disclosed, of advancing the fabric in a manner so that riffles would be formed and all longitudinal tension eliminated. Furthermore, the patent, to accomplish its purpose, depends upon the use of the finishing rollers or calender rolls, which subject the fabric to rolling pressure equivalent to ironing. In other words, the patent does precisely what the inventors in the present application wish to avoid. * * *

"From a practical standpoint, the invention as described in the present application * * * is revolutionary in respect to procedures heretofore used in the art. * * *"

These statements, which were made on behalf of the Tubular Corporation in reference to Cohn patents '344 and '345, have an important bearing on the issues in this case. They demonstrate not only that the problem was not solved by the earlier Cohn patents '644 and '001 but they support the ultimate conclusion that the Redman patents are valid, because they represent the attempt of an experienced manufacturer to appropriate the long sought solution which Redman had disclosed. They serve also to show that the accused machine, the Tube-Tex Tensionless Calender, manufactured by the Tubular Corporation, infringes the Redman patents, for it is conceded that this machine is described in the Cohn patent '345. The statements in the specification of that patent are significant. It refers to the prior practice whereby shrinkage occurred in garments which had been made from fabric stretched and pressed in the processing operation, and announced the discovery that this shrinkage could be substantially eliminated if the fabric is relaxed and longitudinally "riffled" during the steaming process. The figures of the patent show that the cloth is

fed to the apparatus under a slack condition by control of speeds and is advanced by a spreading and propelling device which is so constructed that the fabric is spread to the desired width and propelled in such a manner that the rearward portion is delivered at a speed in excess of that of the forward portion, whereby "riffles" are formed in the surface of the forward portion and it is freed from longitudinal tension. Immediately after the steaming process the fabric is delivered to a winding mandrel so operated that it takes up the fabric without exerting any tension. The crucial step in the operation, whereby the shrinkage of manufactured garments is minimized, is the formation of "wrinkles, creases, folds or rumples" which extend transversely across the fabric as it proceeds through the apparatus. This step, as we have seen, is the heart of the prior Redman patent.

This compression or relaxation of the fabric longitudinally while the fabric is spread laterally to the desired width in the finishing operations does not entirely eliminate the shrinkage of the laundered garments, but it reduces the shrinkage so markedly that it is accepted by the trade as a practical improvement of great value. It may seem to involve so small an advance over the control of longitudinal tension previously employed as to have been obvious to the industry, but actually it was only after a long period of experimentation that it was hit upon and then widely approved. Therein lies its patentability. A similar seemingly small step in the papermaking industry was recognized as invention in *Eibel Co.* v. *Paper Co.*, 261 U. S. 45. The improvement of the process consisted merely in the elevation of the end of a moving screen so as to enable the stream of papermaking liquid stock upon the screen to keep pace with the screen itself and to run smoothly without rippling; but it increased the productivity of the machine to such an extent that it was generally adopted by the industry as the remedy of an old defect for which a cure had long been

sought. Accordingly, it was held to involve invention and to be entitled to a patent. The Court said (page 63):

> "In administering the patent law the court first looks into the art to find what the real merit of the alleged discovery or invention is and whether it has advanced the art substantially. If it has done so, then the court is liberal in its construction of the patent to secure to the inventor the reward he deserves. If what he has done works only a slight step forward and that which he says is a discovery is on the border line between mere mechanical change and the real invention, then his patent, if sustained, will be given a narrow scope and infringement will be found only in approximate copies of the new device. It is this differing attitude of the courts toward genuine discoveries and slight improvements that reconciles the sometimes apparently conflicting instances of construing specifications and the finding of equivalents in alleged infringements. In the case before us, for the reasons we have already reviewed, we think that Eibel made a very useful discovery which has substantially advanced the art. His was not a pioneer patent, creating a new art; but a patent which is only an improvement on an old machine may be very meritorious and entitled to liberal treatment."

We find no substance in the additional contention of the defendant that Redman's only contribution to the art was an extreme stretching widthwise of the fabric while it was being processed. This argument rests on the declaration in the specification of Redman patent '528 that normalization "can be accomplished by expanding the tubular fabric widthwise to a circumferential dimension substantially equal to the circumferential dimension at which the fabric was knitted"; and it is emphasized that Cohn testified

that the accused machine was not adapted to the extreme overspreading of cloth.

The specification of patent '528, however, immediately after the quoted passage, goes on to say "and simultaneously feeding the tubular fabric lengthwise with sufficient lengthwise freedom to permit such widthwise expansion of the fabric without subjecting it to any appreciable lengthwise tension." The novelty lies mainly in the step, described in the last quoted words, which Cohn, following Redman, found to be essential. The evidence shows that Cohn himself employed substantial widthwise stretching and the advertisements of the Tubular Corporation, in extolling the merits of its machine, shows that overspreading is used by most mills to control the lengthwise shrinkage. The point is of little moment in any event, for infringement would not be avoided merely by showing that the widthwise stretching of the material by the accused machine is not so great as that indicated by the Redman patent.

Affirmed.

Judgment, U. S. Court of Appeals for the Fourth Circuit

UNITED STATES COURT OF APPEALS

FOR THE FOURTH CIRCUIT

No. 7563.

APPEAL FROM the United States District Court for the Middle District of North Carolina.

THIS CAUSE came on again to be heard on the record from the United States District Court for the Middle District of North Carolina, and was reargued by counsel.

ON CONSIDERATION WHEREOF, It is now here ordered, adjudged and decreed by this Court that the judgment of the said District Court appealed from, in this cause, be, and the same is hereby, affirmed with costs.

SIMON E. SOBELOFF
Chief Judge, Fourth Circuit.

MORRIS A. SOPER
United States Circuit Judge.

CLEMENT F. HAYNSWORTH, JR.
United States Circuit Judge.

FILED
JUL 17 1958
R. M. F. WILLIAMS, JR.
Clerk

Order Denying Petition for Rehearing

APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE MIDDLE DISTRICT OF NORTH CAROLINA, AT GREENSBORO.

The petition for rehearing filed by the appellant herein having been read and considered, is ordered this 17th day of September 1958 that the same be and is hereby denied.

SIMON E. SOBELOFF
Chief Judge, Fourth Circuit.

MORRIS A. SOPER
United States Circuit Judge

CLEMENT F. HAYNSWORTH, JR.
United States Circuit Judge

FILED
SEP 18 1958
R. M. F. WILLIAMS, JR.
Clerk

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Office Supreme Court, U.S.
FILED
DEC 5 1958
JAMES R. BROWNING, Clerk

IN THE

Supreme Court of the United States

October Term, 1958.

No. 498.

STEDMAN MANUFACTURING COMPANY,
Petitioner,

v.

FRANK R. REDMAN and REDMAN PROCESS AMERICAN CORPORATION,
Respondents.

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Fourth Circuit.

Respondents' Brief in Opposition.

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IN THE

Supreme Court of the United States

October Term, 1958

No. 498

STEDMAN MANUFACTURING COMPANY,
Petitioner,

v.

FRANK R. REDMAN AND REDMAN PROCESS AMERICAN CORPORATION,
Respondents.

ON PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT.

RESPONDENTS' BRIEF IN OPPOSITION.

QUESTIONS PRESENTED.

The District Court held respondents' patents valid and infringed by petitioner's use of the infringing device. The manufacturer-lessor of the infringing device openly assumed control of the defense; the District Court's findings, conclusions, and judgment were made binding on the manufacturer, and the petitioner's appeal to the Court of Appeals did not challenge this feature of the judgment. The Court of Appeals unanimously affirmed the District Court's judgment. The questions presented by the petition are:

1. Whether the judgment below sustaining the validity of respondents' patents was in fact based on the ground asserted in petitioner's question 2; and

2. Whether the language of the judgment as it may affect the manufacturer should be reviewed by this Court on petition of the infringing user.

STATEMENT.

The action is one for patent infringement, in which respondents charge petitioner with infringement of two patents, Nos. 2,597,528 (Vol. I, 65) and 2,597,530 (Vol. I, 66) (referred to as '528 patent and '530 patent), relating, respectively, to an apparatus and method for producing pre-shrunk tubular knit fabrics.

Frank R. Redman (referred to as Redman) is the owner of the patents, and Redman Process American Corporation (referred to as RPA) has the exclusive right to grant licenses under the patents. Stedman Manufacturing Company (referred to as Stedman) knits and processes tubular knit fabrics and manufactures garments therefrom. Stedman does not make or sell equipment. The charge of infringement is based on the use by Stedman of an apparatus and method for providing pre-shrunk tubular knit fabric.

The apparatus used by Stedman is known as a "Tube-Tex Tensionless Calender" and is manufactured and leased to it by Tubular Textile Machinery Corporation (referred to as Tubular). Tubular openly assumed exclusive control of the litigation through its own attorneys and is paying the entire cost (Finding of Fact 7, R. App. 3A;[1] Vol. IV, 99b-100b; Tr. 874), but is not a party of record to the actions.

1. The appendix to the petition is referred to as "App." and the appendix to this Brief as "R. App.". References to the appendices below and the volume containing certain supplement appendices and the proceedings in the Court of Appeals will be designated as set forth in the foot-note to page 1 of the petition.

Italics and brackets within quotations are ours unless otherwise stated.

The District Judge, after a three-week trial during which he observed the operation of the tensionless calender and the early Tubular machine (and after having spent "that much time studying the record, briefs and requests") (App. A3) entered judgment for respondents, finding infringement by Stedman and holding the patents valid (App. A12). The findings of fact and conclusions of law entered by the District Court are printed as an appendix to this brief (R. App. 2A-25A). The Court of Appeals, by an unanimous decision, affirmed the judgment. A petition for rehearing filed by Stedman was denied.

As stated in the opinion of the Court of Appeals (App. A21): "All are agreed that the problem [of excessive shrinkage upon laundering] had existed for many years and it was conclusively shown in the trial below that it still existed as late as 1949" (Findings of Fact 10-13, R. App. 4A-6A; Vol. VI, 582b-600b, 606b-608b, 629b, 719b). In the petition, reference is made to "the long-existing shrinkage problem of tubular knitted fabrics" (p. 3, ls. 14-15), and the District Court characterized the industry's efforts to solve the problem as "frantic" (App. A3).

Tubular[2] knit fabric following knitting and before wet processing is in a relaxed condition and the stitches are substantially round or circular in shape. During the wet processing which involves bleaching, washing, and the like, the fabric is stretched longitudinally, as a consequence of which "the stitches are distorted from the shape they had after knitting and the fabric as a whole is distorted accordingly, being stretched longitudinally and narrowed transversely or widthwise" (Vol. I, 66, c. 2, ls. 12-16; Vol. V, 251b-252b). In the conventional practice of the prior art, the

2. So termed because it is knit on a circular knitting machine in the form of a tube.

stitches and fabric remain in the stretched distorted condition because, in the calendering (hot pressing) operation, the tubular fabric is pressed and "set" in this condition. Consequently, when such a fabric is laundered, excessive lengthwise shrinkage results because the distorted "set" stitches are released and return substantially to the relaxed condition that existed following knitting and prior to wet processing (Vol. I, 66, c. 2, ls. 16-32).

The apparatus of Redman's '528 patent has become known as a "normalizer" and the method of his '530 patent as "normalizing", because the apparatus and method return the distorted fabric substantially to its relaxed original knitted (normal) form by repositioning the stitches substantially to their round or circular shape which they had following knitting and prior to wet processing (Vol. I, 65, c. 3, ls. 2-12; Vol. V, 253b-255b). Consequently, the excessive shrinkage, present in the conventionally processed fabric, is eliminated and a *pre-shrunk* tubular knit fabric is obtained.[3]

Tubular knit fabric which has been elongated lengthwise and narrowed widthwise by processing subsequent to knitting and the stitches of which are distorted lengthwise and widthwise, is subjected by the apparatus of the '528 patent to a series of three cooperating mechanisms which perform the three interacting method steps of the '530 patent: first, to a mechanism constructed and functioning to move the tubular knitted fabric lengthwise to and through a treatment zone while the fabric is free lengthwise to shorten or condense; second, to an expanding device in the treatment zone which operates internally of the tubular fabric to expand it widthwise and shorten it lengthwise to

3. "Normalizing" provides for tubular knit fabrics what "Sanforizing" provides for woven fabrics.

an extent that, when the fabric is subsequently relaxed, the stitches are repositioned substantially to their original knitted form and the fabric is restored substantially to its normal condition; and third, to fabric handling means[4] constructed and functioning to cause the fabric to relax and seek its own equilibrium (Vol. V, 263b-264b, 272b). Relaxation of the fabric can take place because the fabric is not pressed and "set", thereby affording the fabric freedom, both lengthwise and widthwise, and permitting the unset stitch yarn to "flow" and return the stitches substantially to their original knitted form (Vol. V, 280b-281b).

The foregoing may be readily understood by reference to the first sheet of the drawing of the '530 patent (reproduced in the appendix to this brief; R. App. 1A). Fig. 1 illustrates the relaxed stitches following knitting and prior to processing and the rectangle in Fig. 1A schematically represents a portion of the relaxed fabric at the same stage. Figs. 2 and 2A show the stitches and fabric after wet processing during which they were stretched in length and narrowed in width. Figs. 3 and 3A illustrate the condition of the stitches and fabric during the widthwise expansion while the fabric is free to shorten lengthwise. This is a condition just opposite from that shown in Figs. 2 and 2A. When the fabric is relaxed both lengthwise and widthwise from the condition shown in Figs. 3 and 3A, the stitches return substantially to their original knitted form and the fabric is restored substantially to normal. Figs. 4 and 4A show the condition of the stitches and the fabric after relaxation following the widthwise expansion, substantially as they were in Figs. 1 and 1A (Vol. I, 66, c. 4, l. 34 to c. 5, l. 35; Tr. pp. 154-160).

4. No mention is made in the list of parts on page 4 of the petition of this "fabric handling means permitting the fabric to relax". None of the parts of the prior art listed functions to cause or permit relaxation of the fabric.

With reference to the prior art, petitioner abandoned in the Court of Appeals all of the prior art except the early machines of Tubular, said to be described in Tubular patents Nos. 2,187,644 [5] and 2,228,001. From the statements in the petition with respect to the early Tubular machines (pp. 3-5), one might conclude that such machines were of similar construction and operated in a similar manner to the apparatus and method of the Redman patents.

But this is not so. The earlier Tubular machines were designed to provide a specified yield of fabric (i.e., predetermined width and length) through control of mill shrinkage by regulation of the tension, both lengthwise and widthwise, and then pressing the fabric to "set" it at those dimensions by the calender (hot pressing) rolls of the machine (App. A20, Finding of Fact 34, R. App. 12A-13A; Vol. II, 397, p. 5, c. 1, ls. 51-54; Vol. VII, 15-16; Vol. IV, 205b-206b; Vol. V, 472b, 475b, 481b, 450b, 533b-534b). "Setting" of the fabric effected a binding or interlocking of the stitches, with the result the stitch yarn was not free to "flow" (Vol. V, 539b). Hence, the fabric could not relax and remained in its distorted condition, due to the distorted form of the "set" stitches (Vol. V, 531b, 538b). These distortions and tensions were not released until the garment made from the distorted fabric was laundered, resulting in the excessive shrinkage long encountered in the art. Tubular, in its later '345 patent directed to the tensionless calender [6] used by Stedman, acknowledged this standard procedure, by stating (Vol. I, 213, c. 1, ls. 12-16):

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5. This patent was not set up as a defense by petitioner, was not relied upon by petitioner at the trial in the District Court and no testimony was given with respect thereto.

6. The tensionless calender is the subject of Tubular's later patents Nos. 2,589,344 and 2,589,345, and was developed and aggressively promoted by Tubular *after* it had learned the details of Redman's apparatus and method (App. A8-A10).

> "This procedure stretches, presses and prevents any shrinkage of the fabric during the operation. Consequently, when a garment cut from the fabric is laundered, shrinkage occurs with resulting distortion of the garment."

Likewise, during the prosecution of the later Tubular patent '345, in differentiating the tensionless calender from the earlier '644 patent, Tubular stated:

> "Furthermore, the patent, ['644] to accomplish its purpose, depends upon the use of the finishing rollers or calender rolls, which subject the fabric to rolling pressure equivalent to ironing."

and

> "It has always been considered necessary to maintain longitudinal tension in the fabric, to apply calender rolls thereto, and to wind the fabric under a degree of longitudinal tension." (Vol. VII, 15-16).

The crux of the inventions of the patents in suit is the combination and interaction of the means and steps of expanding the distorted tubular fabric widthwise while it is free lengthwise, followed by relaxation of the fabric to reposition the fabric stitches substantially to their original knitted form and to restore the fabric substantially to its normal condition (Vol. I, 67, c. 3, ls. 8-17; 65, c. 3, ls. 12-17; Vol. V, 253b-255b). Contrary to petitioner's assertions (pp. 4, 5), this combination and interaction was not embodied in the earlier Tubular machines or in any other prior machine or method and was not disclosed in the prior '644 and '007 patents or any other patent (Findings of Fact 33-56, R. App. 12A-24A; Vol. V, 526b-552b).

This is a complete answer to petitioner's claim (pp. 5, 7, 9, 10) that the Courts below sustained the patents on

the basis of the results achieved, rather than on fundamental differences over the prior art. The opinions below and the findings of fact entered by the District Court show that both Courts carefully considered the structures and methods of the prior art and found them lacking.[7] Likewise, there is no basis for petitioner's contention (pp. 3, 9-11) that the opinion of the Court of Appeals shows that there was substantial identity between the prior art Tubular machines and the Redman patents, nor for petitioner's assertion that the Court of Appeals bottomed its conclusion upon a "'small advance' * * * in a technique 'previously employed' ". What the Court said was:

> "It *may seem* to involve so small an advance over the control of longitudinal tension previously employed as to have been obvious to the industry, but actually it was only after a long period of experimentation that it was hit upon and then widely approved." (App. A26)

What the industry was seeking, and had not found prior to Redman, was a means and method of obtaining a pre-shrunk tubular knit garment, that is, a garment whose shrinkage upon laundering has been reduced to such an unobjectionable percentage that the garment will be shrink-resistant and can be sold under an appropriate guarantee against such shrinkage. For the first time, it is possible to market a pre-shrunk knitted garment—a truly new product—and the Redman licensees and lessees of Tubular's tensionless calender now sell their garments as "Guaran-

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7. The District Court made its findings and rendered its opinion after examining the tensionless calender and the earlier Tubular machine in operation and at rest. Contrary to petitioner's contention (p. 5), the District Court made a full and careful consideration of all defenses asserted against validity of the Redman patents (see Findings of Fact 33-56, R. App. 12A-24A).

teed not to shrink out of fit"; "They never shrink out of fit"; "Keeps its fit even after countless washings" (Vol. IV, 37b-40b, 50b-52b, 84b-93b, 113b-114b; Vol. V, 491b-495b; Vol. VI, 637b-639b, 642b, 643b, 655b, 668b).

Taking the experience of Stedman as typical, the lengthwise shrinkage of its T-shirts after one wash was in the range of 11%-13% (line dried) using the prior processing procedure (Vol. IV, 112b), whereas with the tensionless calender, the shrinkage is reduced to 3% or less (Vol. V, 498b-501b).[8] When asked if a garment with shrinkage of 11%-13% could have been sold under the guarantee now used by Stedman: "Will not shrink out of fit", Mr. Stedman replied: "For the fabric which I have just mentioned I would say very definitely not" (Vol. IV, 112b). See also the experience of Perry Knitting (Vol. IV, 33b-38b), Beaunit Mills (Vol. IV, 45b-47b), Ashland Knitting (Vol. IV, 58b-62b), Richland Knitting (Vol. IV, 54b-57b), and Burkey Underwear (Vol. IV, 66b-70b).

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8. Petitioner (foot-note p. 5) refers to the shrinkage of "less than 2%" mentioned in the Redman patents and compares this with a figure of 10%. Such comparison is completely unjustifiable. The record discloses that there are three methods of drying fabrics to determine shrinkage upon laundering, namely, line dried (dried hanging on a line), screen dried (dried on a flat screen at rest), and tumble dried (dried in a tumble drier, roughly tumbled about and compacted). The line dried and screen dried figures are comparable, but the figure for tumble drying is much higher due to the very severe treatment given the fabric (Vol. V, 464b-466b). The 2% figure given in the patent is for a screen dried fabric, whereas the 10% figure is for tumble drying. It is necessary, of course, in comparing figures that the same type of drying shall have been employed. For example, "Sanforized" woven fabrics, guaranteed not to shrink more than 1% (line or screen dried) have a shrinkage figure of as much as 8% when tumble dried (Tr. 642). What was discussed in the transcript cited by petitioner was a "before and after" Redman comparison of 20% before and 10% after (tumble dried) and 12%-20% before and less than 5% after (line or screen dried) (Tr. 1514-1515).

As the President of the Underwear Institute (which had sponsored Redman's shrinkage work from 1945 to 1951) stated upon dissolution of the Redman Trust following introduction of Tubular's tensionless calender (Vol. VI, 580b-581b):

> "The Underwear Institute and the Contributors of the Redman Trust can take pride in the fact that they were the *first in the field to sponsor and develop methods of preshrinking for knit goods.*"

There is no basis, therefore, for petitioner's assertion (P. 5-6) that Redman's improvement was merely a matter of degree and that the problem of excessive shrinkage has not been solved.

Nor is there basis for petitioner's further contention that the earlier Tubular machines were "designed, among other things, to restore the fabric tube to its original condition, and thus to reduce shrinkage in the finished garment." Such contention is fully answered by the experience of the industry, as shown by Tubular's own statements. Thus as Tubular stated in its later '344 patent directed to the tensionless calender, the object is to provide a fabric which is not "subject to substantial additional shrinkage as a result of laundering, *an object which has long been considered desirable but heretofore has not been attainable in the treatment of tubular textile fabrics*" (Vol. I, 215, c. 1, ls. 29-31). Tubular's other later patent '345 also emphasizes: "*This object* [the provision of a fabric not "subject to further substantial shrinkage"] *has been needed in the industry but never heretofore obtainable*" (Vol. I, 213, c. 1, ls. 27-28).

Because the earlier Tubular machine failed to reduce shrinkage, Tubular found it necessary, following Redman,

to develop its new tensionless calender, as to which Tubular has stated in its advertisements (Vol. V, 461b-462b):

> "When it is necessary to control or reduce residual shrinkage, the Tube-Tex Tensionless Calender should be used. This machine uses a patented driven propeller spreader of somewhat different design than the straight-line calender. The principle in this machine is the complete relaxation of the fabric. By accomplishing this, residual shrinkage is substantially reduced."

Despite the fundamental differences in theory and practice discussed above, petitioner contends (pp. 5-6) that the only difference between the operation of the early Tubular machines and the Redman patents lay in the fact that respondents' patents emphasized the practice of extreme widthwise spreading. This contention was pressed at the trial and in the Court of Appeals and was disposed of by the District Court in Findings of Fact 21 and 22 (R. App. 8A-9A) and by the Court of Appeals in the last two paragraphs of the opinion (App. A27-A28). In both Courts, the necessary combination and interaction of widthwise expansion and subsequent relaxation were stressed, contrary to petitioner's statement (p. 9). Petitioner's reference (p. 5) to "wide-spreading" in connection with infringement and with the disclosure of Tubular's later '344 and '345 patents completely disregards the evidence that, to eliminate excessive shrinkage, Tubular and its lessees find "widespreading" (with subsequent relaxation) to be essential (Vol. VI, 658b, 723b, 725b-728b; Vol. V, 315b-321b, 507b- 508b).

It has been shown that the premise upon which the petition is based is not factually correct. The earlier Tubular machines were not designed "to restore the fabric tube

to its original condition, and thus to reduce shrinkage in the finished garment" (p. 3) and they did not embody or disclose "the same basic parts, operating in the same sequence and in the same basic way to accomplish the same end", as the tensionless calender (or the Redman patents) (p. 3).

ARGUMENT.

The trial in the District Court involved questions of validity and infringement. The Court of Appeals' opinion deals exclusively with these matters. Petitioner points to nothing which would warrant this Court's review of the decision below on the validity of respondents' patents, based as it is on a voluminous record and extensive argument and embodying the considered conclusions of the trial judge and three appellate judges.

The judgment enjoins petitioner from continuing to use the infringing device, and orders reference to a master to ascertain the damages for which petitioner is liable by reason of its infringing use. Thus, the impact of the injunction on the manufacturer (who, as petitioner concedes, openly controlled the defense) is a matter of no concern to the petitioner. *Minneapolis-Honeywell Regulator Co. v. Thermoco*, 116 F. 2d 845, 847 (2 Cir.) No doubt for this reason, petitioner failed to make timely objection to that part of the judgment which is made binding on the manufacturer, either in the District Court or the Court of Appeals. Furthermore, petitioner's present criticism of the judgment reflects only an "abstract" controversy. *Regal Knitwear Co. v. Board*, 324 U. S. 9, 15-16. Plainly, petitioner is now challenging this feature of the judgment only in order to exploit a purported (but actually non-existent) conflict with decisions in other circuits, in an effort to persuade this Court to review the validity of the patents.

1. *The judgment below, finding respondents' patents valid, is clearly correct and presents no issue which warrants review by this Court.* Petitioner's challenge to the validity of respondents' patents is now limited, as appears from question 2 of the petition (p. 2), to the contention that the patents embody "an old combination of old elements and

steps", and that the Court of Appeals erroneously held such an "old combination" patentable "merely because the claimant's apparatus and method improved, in degree, the old result".

As has been shown in our statement (*supra*, pp. 2-12), there is no factual basis for the argument that the Redman patents embody only "an old combination of old elements and steps". Nor has petitioner accurately stated the basis of the Court of Appeals decision. On the contrary, its opinion stressed (pp. A20-A21) the discovery of a new apparatus and process to eliminate shrinkage of the fabric "after it was processed" (as distinguished from "mill shrinkage") by restoring the stitches substantially to their original knitted form. Far from being an "old combination of old elements and steps", the new apparatus and process, according to the Court of Appeals (p. A26) was found by Redman "only after a long period of experimentation", and represented "a practical improvement of great value".

Petitioner's contention that the Court of Appeals "misconstrued the governing decisions of this Court" is derived principally from the lower Court's reliance on *Eibel Co. v. Minnesota & Ontario Paper Co.*, 261 U. S. 45, and petitioner's claim that the Court ignored later decisions of this Court.

In the *Eibel* case, the paper industry had endeavored for years to increase the speed of paper machines. Eibel accomplished this, using an arrangement by which the pitch of the paper-making wire was increased to a greater extent than previously. In the prior practice, the pitch had been increased, but the increase had been for "a different purpose", namely, to control drainage. For this reason, the Court stated that Eibel's invention was "directed

toward a wholly different object from that of the prior art". The Court found such departure from the art not "a mere matter of degree" and sustained the patent.

Here the knitting industry had sought in vain for means to eliminate the excessive shrinkage in tubular knit goods. Redman accomplished this by a new means and method not previously used for *any* purpose. Thus, in the present case, the departure from the prior practice is even more marked than in the *Eibel* case.

As in the *Eibel* case, Redman's inventions were clearly "for a different purpose" and were "directed to a wholly different object from that of the prior art" and were not "for a mere matter of degree". The purpose of Redman was to eliminate the excessive shrinkage on laundering by relaxation of the fabric after it had been expanded to re-position the stitches and thus to restore the fabric to its normal condition. This purpose was recognized by the Court of Appeals (A17, last paragraph), and it emphasized the importance, in connection with the other elements, of the "fabric handling means permitting the fabric to relax" (A18).

In contrast to this, in the prior practice the purpose was to reduce mill shrinkage by controlling tension on the machine, both lengthwise and widthwise, followed by "setting" the stitches (*supra* p. 6). This was specifically pointed out by the Court of Appeals when it stated that, in the prior Tubular machines, the fabric "is carried to the finishing rolls where it is pressed flat and *set* at the width to which it has been spread", and that in such machines "The fabric attains and *retains* the final permanent width and length and it passes the finishing rolls and is wound up" (A18-A19). Consequently, as the Court of Appeals held, the prior Tubular patents "obviously relate to what is called mill shrinkage which occurs during the finishing

operations and not to the shrinkage of articles manufactured from the fabric" (A20-A21). In the same connection, the Court stated: "The evidence in the case, however, demonstrates quite clearly that the harmful shrinkage of garments made from the fabric *after it was processed in* these machines was in fact not eliminated" (A20-A21; emphasis the Court's).

With respect to *Cuno Corp. v. Automatic Devices Corp.*, 314 U. S. 84, *Sinclair Co. v. Interchemical Corp.*, 325 U. S. 327, and *Great A. & P. Tea Co. v. Supermarket Corp.*, 340 U. S. 147, cited by petitioner (pp. 10, 11), the evidence and the opinions below show clearly that Redman's inventions were *not* a combination of old elements and steps (*A. & P.*) and were *not* "plainly indicated by the prior art" (*Cuno*), but rather constituted a "discovery" comprising a new combination and interaction of mechanisms and steps which did "add to the sum of useful knowledge" (*A. & P.*) and which the "art", by its substantial adoption of Redman's inventions, "recognized as an advance" (*A. & P.*) and a "substantial innovation for which society is truly indebted" (*Sinclair*). See also *Graver Tank & Mfg. Co. v. Linde Air Prod. Co.*, 336 U. S. 273, 274 (1949).

Petitioner's contentions (pp. 7, 9-11) as to what the Court of Appeals below did or did not do or say are fully answered by the foregoing Statement (see *supra* pp. 2-12) and by the opinion of that Court.

Both Courts below sustained the patents because Redman had proceeded contrary to the long-established practices of the art, as typified by the early Tubular machines, and had devised an apparatus and method by which a concept, new in the art, has been put to practical commercial use. Petitioner has presented no valid reason why the writ should be granted.

2. The part of the judgment made binding on the manufacturer is clearly correct and, in any event, is not subject to review by petitioner. The petitioner, a lessee and user of the infringing device, concedes that the manufacturer-lessor (Tubular) openly assumed control of the defense in this action (Pet. pp. 2, A11, A15). Accordingly, the District Court's judgment was made binding on Tubular, in accordance with the well-established principle that one who openly conducts the defense of an action in aid of some interest of his own "is as much bound by the judgment * * * as he would be if he had been a party to the record." See *Souffront v. La Compagnie des Sucreries de Porto Rico*, 217 U. S. 475, 486-87.

Petitioner apparently does not challenge the trial Court's finding that Tubular is bound by the judgment, but takes exception to the form of that portion of the judgment relating to Tubular. But no such objection was raised in the District Court against this part of the judgment. No such objection was mentioned among the several questions stated in petitioner's brief in the Court of Appeals,[9] nor is this point anywhere mentioned in that court's opinion. Since petitioner has failed to make timely objection to the form of the decree in either the District Court or the Court of Appeals, the matter cannot now be raised in this court. *Adams v. Mills*, 286 U. S. 397, 416-17; *Helvering v. Minnesota Tea Co.*, 296 U. S. 378, 380; *Robinson & Co. v. Belt*, 187

9. Paragraph 2(b) of Rule 10 of the Court of Appeals for the Fourth Circuit requires that the appellant's brief shall contain "A brief statement of the case together with a succinct statement of the questions involved, separately numbered, and the manner in which they are raised in the record." Paragraph 8 of Rule 10 declares that "Points not argued in the briefs will be deemed abandoned and may not be argued orally except by permission of the court." There was no such permission or oral argument in this case.

U. S. 41, 49-50; *Duignan v. U. S.*, 274 U. S. 195, 200; *Old Jordan Min. & M. Co. v. Societe Anonyme Des Mines*, 164 U. S. 261, 264-5.

In a footnote in its petition for rehearing in the Court of Appeals, petitioner for the first time adverted to the form of that part of the decree relating to Tubular. Whether or not this was a belated effort to raise the point in the Court of Appeals with an eye to its availability as a ground for a subsequent petition for certiorari,[10] the phrasing of the footnote plainly manifests petitioner's own lack of "concern" with the question.[11]

But even if petitioner had sought to make timely objection on this ground, the fact remains that it has no legal interest, and that there is no justiciable issue between petitioner and respondents presented by this matter. *Minneapolis-Honeywell Regulator Co. v. Thermoco, Inc.*, *supra*, p. 847. In *Regal Knitwear Co. v. Board*, 324 U. S. 9, where the petitioner objected to an order of the National Labor Relations Board insofar as it sought to bind not only the petitioner but also the petitioner's "successors and assigns", this court declined to strike the quoted words, on the ground that the case presented only an "abstract controversy", saying (324 U. S. at 15-16):

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10. Of course, such belated and casual mention of this point in the petition for rehearing did not in any respect comply with the provisions of Rule 10 of the Court of Appeals, and does not make the question available for review here on certiorari.

11. The footnote in question reads as follows (petition for rehearing in the Court of Appeals, p. 2): "While it openly controlled the Stedman defense, Tubular is not a party to this action, has never been served, and has never appeared. It is perfectly clear, therefore, that the District Court was without jurisdiction to act directly against Tubular in this case. This Court may deem it appropriate to correct this elementary flaw, which we note only in passing since our concern is with more crucial errors and inadequacies in the judgment.

"No concrete case is before us. We have here an abstract controversy over the use of these words, and it is as sterile as abstract controversies usually are. The employer objects to the words of the order merely as words. They do not enlarge its own obligation, and if it complies with the order, little by way of obligation could be passed to a successor or assign by the order that is not in any event imposed by statute. The Board is not here attempting to reach or to hold anyone in contempt by virtue of such orders. No successor or assign appears before us complaining that these words put him in jeopardy. No one can be punished for contempt because of these words until after a judicial hearing, in which their operation could be determined on a concrete set of facts. All that is before us is the question whether we will hold abstractly that this provision is an illegal one to include in a cease and desist order of the Labor Board or an enforcement order of the Court."

Similarly, in the present case there is no justiciable controversy before the Court. Insofar as the judgment binds Tubular, there may or may not arise in the future a controversy between Tubular and the respondent with respect to the effect of the judgment below on Tubular. But there is no such controversy presented here. Petitioner cannot be heard to complain about the effect of the judgment on Tubular,[12] under the *Regal* case, *supra*, and numerous other decisions wherein this Court has declined to consider alleged errors, in the disposition of which the com-

12. In the *Regal* case, the petitioner asserted a legal interest on the ground that the effect of the injunction on "successors and assigns" might hamper the petitioner in selling his business. But no such interest can be asserted by the petitioner in the present case, for the binding effect of the judgment on Tubular cannot possibly affect the value of petitioner's own business.

plaining party had no interest. *Interstate Commerce Commission v. Chicago R. I. & P. R. Co.*, 218 U. S. 88, 109; *Farmers Loan and Trust Co. v. Waterman*, 106 U. S. 265, 269-71; *Tucker v. Ferguson*, 22 Wall. (89 U. S.) 527, 571; *Baker v. Gee*, 1 Wall. (68 U. S.) 333, 337.

As stated above, it seems plain that this objection to the form of the judgment relating to Tubular has been tardily raised by the petitioner in the hope that this Court may thus be induced to review the entire judgment, including the validity of the respondents' patents, for the infringement of which petitioner has been held liable. To this end, petitioner seeks to invoke a purported conflict with this Court's decision in *Merriam v. Saalfield*, 241 U. S. 22, and with decisions in the Second and Eighth Circuits.

In fact, there is no such conflict. *Merriam v. Saalfield, supra*, was an unfair competition suit against a distributor of dictionaries. The publisher of the dictionary participated in the defense, but this was unknown to the plaintiff until after entry of the decree against the distributor. The plaintiff and defendant then settled their differences, and *thereafter* the plaintiff sought to hold the publisher liable in damages, in an ancillary proceeding. Since the publisher had not openly assumed control of the defense, the District Court held that he was not bound by the judgment. This Court sustained the ruling below, on this ground and for the additional reason that an ancillary proceeding for past damages required personal service on the publisher, which had not been had. The decision has no application here, since Tubular openly conducted the defense throughout the trial, and the judgment does not seek to assess damages against Tubular.

Petitioner relies on *S. S. Kresge Co. v. Winget Kickernick Co.*, 96 F. 2d 978 (8 Cir.), but that case, like the *Merriam* case, also involved an accounting for past dam-

ages. Petitioner's brief also cites [13] the *Minneapolis-Honeywell* case, *supra*, but this decision as already noted, stands athwart petitioner's effort to challenge the application of the judgment to Tubular.

In summary, petitioner did not make timely objection to the part of the decree relating to Tubular, has no legal standing to challenge this feature of the judgment, and has failed to set forth anything which would warrant review of that part of the decree by this Court.

CONCLUSION.

The decision below is correct, no important question warranting further review by this Court is presented, and there is no conflict of decisions. The petition for a writ of certiorari should be denied.

Respectfully submitted,

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13. The other decision from the Second Circuit cited by petitioner, *Alemite Mfg. Corp. v. Staff*, 42 F. 2d 832, has nothing to do with the problem here under discussion.

May 20, 1952 F. R. REDMAN 2,597,530

METHOD OF TREATING FABRIC

Filed May 1, 1950 5 Sheets-Sheet 1

FIG. 1

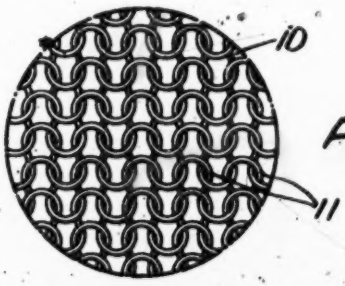


FIG. 1A

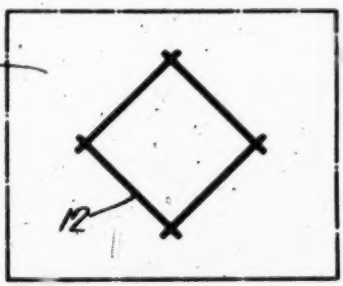


FIG. 2

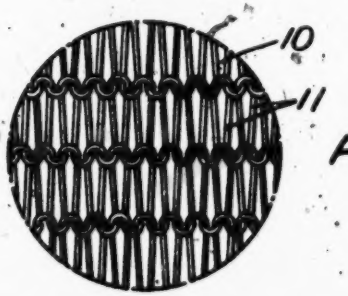


FIG. 2A

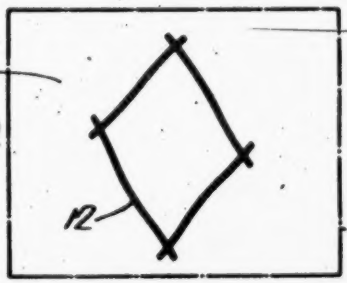


FIG. 3

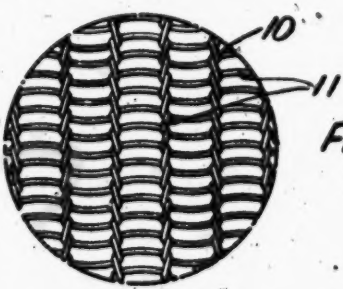


FIG. 3A

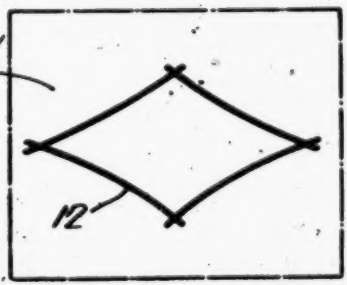


FIG. 4

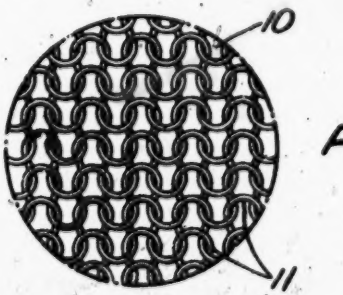
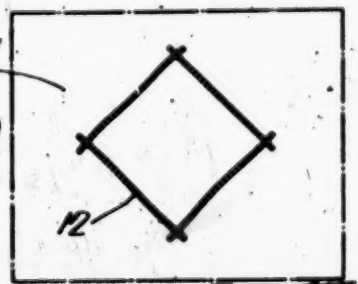


FIG. 4A



Inventor
Frank R. Redman
by his Attorneys
Howson & Howson

Findings of Fact.

1. This is an action for infringement of two patents, No. 2,597,528 and No. 2,597,530, both issued May 20, 1952 to the plaintiff Frank R. Redman. Claims 1 to 7, inclusive, of the '528 patent and claims 1 to 3 and 5 to 13, inclusive, of the '530 patent are in suit.

2. Plaintiff Frank R. Redman (hereinafter referred to as Redman) resides at Yardley, Pennsylvania, and is the inventor and owner of the two patents in suit, and plaintiff Redman Process American Corporation, a Delaware corporation with a principal place of business in New York, New York (hereinafter referred to as RPA), has the exclusive right to grant licenses under the patents.

3. Defendant Stedman Manufacturing Company (hereinafter referred to as Stedman Co.) is a North Carolina corporation with a place of business at Ashboro, North Carolina, within this District, where the acts of asserted infringement took place.

4. The action arises under the Patent Laws of the United States and the Court has jurisdiction under 28 U. S. C. 1338(a).

5. The Complaint charges defendant Stedman Co. with infringement of the two patents in suit by reason of its use of a machine known as a "Tube-Tex Tensionless Calender" (patent '528) for reducing shrinkage in tubular knitted fabrics, and of the method employed in connection with that equipment (patent '530).

6. The Tube-Tex Tensionless Calender (hereinafter referred to as the tensionless calender) used by defendant is owned by Tubular Textile Machinery Corporation of Woodside, New York (hereinafter referred to as Tubular); the

manufacturer thereof, and is in defendant's possession under a lease agreement dated June 16, 1952.

7. One of the provisions of the aforesaid lease requires Tubular to assume the defense of any suit for infringement and to pay attorneys' fees and taxable costs provided Tubular be given exclusive control of the defense through attorneys of Tubular's own selection. Pursuant to this provision, the Stedman Co. has given Tubular exclusive charge of the defense of this action and Tubular has assumed exclusive control thereof through its own attorneys and is paying the entire cost thereof. A similar provision is included in all of Tubular's leases. The exclusive control of the defense of this action has been assumed by Tubular to protect its own rights in the leasing of its tensionless calenders in the industry.

8. The patents in suit are directed to an apparatus (patent '528) and to a method (patent '530) for reducing the shrinkage in tubular knitted fabrics when laundered. Such fabrics are used in the manufacture of various types of garments, such as T-shirts, briefs, athletic undershirts, children's sleepers, and outerwear, for example, polo shirts.

9. When tubular knitted fabrics are stretched in length, they tend to become narrow in width and when expanded in width, they tend to become shorter in length. This is an inherent characteristic of such fabrics which is due to the construction of the fabric stitches and is well recognized by the industry. After tubular fabric is knitted, it is subjected to several wet processing steps including scouring, bleaching, dyeing, and extraction. In these wet processing steps, the fabric is pulled longitudinally and "the stitches are distorted from the shape they had after knitting and the fabric as a whole is distorted accordingly, being stretched longitudinally and narrowed transversely or widthwise" (patent '530, col. 2, ls. 12-15). The stitches of

the finished fabric are set in a distorted condition, and excessive lengthwise shrinkage results because, upon laundering, the stitches, and consequently the fabric as a whole, return substantially to the untensioned (relaxed) condition that existed following the knitting of the fabric.

10. For many years prior to the inventions of the patents in suit, excessive lengthwise shrinkage of garments made from tubular knit fabrics was recognized as a very serious problem by the industry. In spite of many efforts over the years to solve it, the problem still existed, as is shown by the experience of Munsingwear, Inc., one of the largest producers of knit garments in the country; by the experience of the U. S. Quartermaster Corps and of the industry at large through the sponsorship of the Redman Trust by the Underwear Institute, a trade organization including in its membership the majority of the manufacturers of knitted underwear in the United States; by the experience of Tubular; by the experience of the Stedman Co.; and by the experience of the Redman licensees.

11. As the use of a tensionless calender leased by Tubular to the Stedman Co. is in issue, the experience of Tubular is particularly significant. In 1939, Tubular attempted to solve the lengthwise shrinkage problem by constructing two experimental "pre-shrinking" machines, one of which was retained at the plant and the other of which was first leased to Globe Knitting and then to Munsingwear. The machines did not perform satisfactorily and were never used commercially. The problem remained unsolved by Tubular until its development of the tensionless calender, after it was fully familiar with the details of Redman's apparatus and method. In patents Nos. 2,589,344 and 2,589,345 issued in 1952, directed to the tensionless calender, it is stated that the provision of a tubular knit fabric which will not be subject to substantial shrinkage upon laundering "has long been considered desirable but

heretofore has not been obtainable in the treatment of tubular textile fabrics", and "This object has been needed in the industry but never heretofore obtainable".

12. The cause of excessive lengthwise shrinkage of Tubular knit garments had long been known but despite this, no solution of the problem was forthcoming. As early as 1938 or 1939, Munsingwear had made a study of the matter and had determined that this shrinkage was due to the elongation of the fabric, with consequent distortion of the stitches, caused by the wet processing steps, and the return of the stitches and fabric upon laundering substantially to the unstretched or equilibrium condition which existed following knitting and before wet processing. The same conclusion had been reached by the Quartermaster Corps and a report so stating was distributed in May 1947 which summarized the situation as follows: "However, even though all of the causes for lack of stability have been analyzed, qualitively and quantitatively, and their effects plotted and charted, the Army is still purchasing knit goods that shrink 15 to 20 percent in the first wash".

13. By Redman's inventions of the patents in suit, the excessive lengthwise shrinkage of garments made from such fabrics, which had plagued the industry for years, is eliminated. As contrasted to the prior garments which shrank to such an extent upon laundering that they would no longer fit, Redman made it possible, for the first time, for the industry to market a garment that is shrink-resistant and to guarantee that such a garment "will not shrink out of fit". The licensees of Redman and the lessees of Tubular now are selling their garments using these or equivalent representations and guarantees. Such a shrink-resistant garment is a product new in the industry and is the product that the industry had long been seeking. Referring to the experience of the Stedman Co., as typical, the lengthwise shrinkage of its garments has been reduced

from 11-13% to about 3% or less (line dried) by the use of the tensionless calender.

14. The apparatus of '528 has become known as "a normalizer" and the method of the '530 patent as "normalizing". These terms are used because by the use of the apparatus and method, the fabric itself and the stitches in the fabric, which had been distorted lengthwise and narrowed widthwise by the stretching during processing, are returned substantially to the condition in which they existed following the knitting and prior to processing. By repositioning the stitches substantially to their original knitted form and restoration of the fabric substantially to its normal condition, the excessive lengthwise shrinkage present in the conventionally processed fabrics is substantially eliminated.

15. In the use of the apparatus and method of the patents in suit, tubular knit fabric, which has been elongated lengthwise and narrowed widthwise due to processing, is expanded widthwise while it is free to shorten or condense lengthwise and is thereafter permitted to relax, both lengthwise and widthwise, whereby to effect repositioning of the fabric stitches substantially to their original knitted form and restoration of the fabric substantially to its normal condition. In any particular case, the fabric is expanded widthwise sufficiently while it is free to shorten or condense lengthwise so that, after relaxation, the fabric will be "normalized", that is, returned substantially to the unstretched condition which prevailed immediately following the knitting of the fabric and prior to the processing thereof.

16. This solution escaped the various investigators and experimenters in the industry. It was not obvious to the men skilled in the art. The Munsingwear research men, for example, knew from microphotographs that the stitches,

in the fabric after knitting and before wet processing, had the form illustrated in Fig. 1 of the '530 patent, that after wet processing they had the form shown in Fig. 2, and that after laundering, they returned substantially to their original form as shown in Fig. 1. Notwithstanding this, they had no conception that the problem of excessive shrinkage could be eliminated by expanding the fabric widthwise while it was free to shorten or condense lengthwise (as illustrated in Fig. 3) and thereafter permitting the fabric to relax, to cause the stitches to take the form illustrated in Fig. 4.

17. Redman first became interested in the shrinkage problem in 1938, and at that time developed the apparatus and process of his earlier patents, which were originally the basis for the Redman Trust sponsored by the Underwear Institute. From time to time, beginning in 1944 and until he had equipment available which he could convert into a normalizer in the early winter of 1948, Redman "hand normalized" dry fabric. This work and the sketches made between 1946 and 1948 show that Redman had a full understanding of the principle of normalizing.

18. In 1946, the Trustees of the Redman Trust ordered an experimental machine from Proctor & Schwartz, Inc. This was delivered and installed late in 1947, and placed in operation in January 1948. Redman changed the construction and location of the spreader furnished with the equipment so that normalizing could be accomplished. The normalizer and normalizing method were demonstrated to a large representation of the industry at an Open House held on April 29, 1948. While Tubular had no representatives at the Open House, shortly thereafter Tubular received from one of its customers who was present a detailed disclosure of Redman's normalizing apparatus and method.

19. The Redman Trust granted licenses between December 1948 and its dissolution in December of 1950. A few licenses were granted by Redman while he was operating as an individual and licenses have been granted by RPA following agreement with Redman in December 1952. At the present time, there are twenty-five licenses in force, including licenses held by such well-known leaders in the industry as Perry Knitting Mills, Allen Knitting Co., Beaunit Mills, Spring City Bleach & Dye Works, and Pottsville Bleaching & Dyeing Co. The testimony of executives of licensed companies establishes that the problem of excessive lengthwise shrinkage has been solved by the patents in suit.

20. Because of the competition provided by the introduction of the tensionless calender, the Underwear Institute withdrew its sponsorship of the Redman Trust, and it was during the period when Redman was struggling along trying as an individual to introduce the inventions in the industry that Tubular became entrenched in the field with its tensionless calender.

21. Each patent in suit gives an example in which the tubular knitted fabric is spread or expanded to the circumference of the knitting machine head or one and one-half times the head diameter of the knitting machine. The example given in the patents has been found generally applicable to give satisfactory results. It has also been found to be a good starting place from which to determine the proper width to which the tubular fabric should be expanded so that, upon relaxation, it will return to the normal condition thereof after knitting and prior to processing. In practice, the width to which the tubular knitted fabric is spread or expanded in any particular case depends upon the type of fabric being processed, the knitting construction or type of stitch employed, the weight of the yarn, the processing to which the fabric may

have been subjected, and also the desire of the user to obtain optimum results.

22. The claims in suit of both patents are directed, respectively, to the apparatus and process for accomplishing normalizing and do not require that the fabric be expanded widthwise to any particular numerical amount and are not limited to the treatment of "wet" or "dry" fabric.

23. Defendant's infringing use of its tensionless calender is established by its operations of that equipment in producing the Presnell, Worthington, and Lawson samples of fabric as described by witnesses at the trial and shown by the charts, Pls' Exs. 28A, 29A, and 31. The tensionless calender at the plant of the Stedman Co. as it was employed to process the Presnell and Worthington samples, as well as the Lawson samples, constituted a normalizer as described and claimed in the '528 patent in suit and the method employed in processing these samples at the Stedman plant constituted a normalizing operation under the claims of the '530 patent in suit.

24. Taking claim 1 of the '528 patent as typical, the accused tensionless calender has means (belts) for moving the tubular knitted fabric lengthwise through a treatment zone while affording lengthwise freedom of the fabric. In the tensionless calender, the frame and pulleys of the propeller are within the treatment zone and operate to internally expand or spread the tubular fabric widthwise to effect lengthwise shortening or condensing of the fabric. And the finishing rolls and roll-up roll are fabric handling means which permit the fabric to relax. The belts, propeller frame and pulleys, and finishing roll-up rolls cooperate to internally expand the tubular fabric and shorten or condense it lengthwise as it moves through the treatment zone with lengthwise free-

dom and then to permit it to relax, whereby the fabric stitches are repositioned substantially to their original knitted form and the fabric is restored substantially to its normal condition.

25. Referring to claim 1 of patent '530 as typical, in the operation of the tensionless calender, the belts operate to move the tubular knitted fabric lengthwise through a treatment zone while providing lengthwise freedom of the fabric. In passing through the treatment zone of the tensionless calender, the fabric is expanded widthwise by the frame and pulleys of the propeller which was set sufficiently wider than the width of the entering processed fabric to effect lengthwise shortening or condensing of the fabric. After the tubular knitted fabric has thus been expanded widthwise, the finishing rolls and roll-up roll operate to permit the tubular knitted fabric to relax both in width and length. In the operation of the tensionless calender, these steps of moving the fabric widthwise through a treatment zone with lengthwise freedom, internally expanding it sufficiently to shorten and condense the fabric, and then permitting the fabric to relax, combine and cooperate to reposition the stitches substantially to their original knitted form and restore the fabric substantially to its normal condition.

26. There is substantial identity of both the construction and operation of the tensionless calender with the normalizer and its operation as shown and described in the '528 and '530 patents. Both the tensionless calender and the machines of the two patents in suit have correspondingly functioning means for moving tubular knitted fabric lengthwise to and through a treatment zone while it is free lengthwise to shorten or condense. In the tensionless calender, as operated by the Stedman Co. as in the two patents in suit, there is a treatment zone or expansion station within which there is an expanding de-

vice which operates to internally expand the tubular fabric widthwise to effect lengthwise shortening or condensing of the fabric. In the tensionless calender just as described in the two patents in suit, means in the form of finishing and wind-up rolls are provided which are constructed and function to permit the fabric to relax and seek its own equilibrium, thereby repositioning the stitches of the fabric to their original knitted form and restoring the fabric to its normal condition.

27. Redman's advance in the art has been a real and valuable one which provided a staple solution to a problem that had long harassed the industry.

28. In defendant's operation of its Grand Rapids machine prior to acquiring the tensionless calender, the tubular fabric was spread widthwise and then set substantially at the spread width. In subsequent handling, the spread and set fabric was tensioned and pulled lengthwise so that it was elongated and narrowed widthwise bringing it down to the desired finished width at the cutting table. The fabric had not been "normalized" but to the contrary contained set-in tensions as evidenced by the high shrinkage when washed of from 11-13 percent (line dried) after washing as compared to a residual shrinkage of from 1 to 4 percent in the same tubular fabric finished on the tensionless calender.

29. It is not possible to condense the stitches of tubular knit cotton fabric by pushing the fabric lengthwise. In the operation of defendant's tensionless calender, the overfeeding of the fabric onto the second set of belts forms pleats or ripples of the fabric without any condensing of the individual stitches of the fabric. As soon as the fabric leaves the control of the machine the pleats or ripples move out without leaving any permanent effect upon the fabric.

30. By its use of the tensionless calender, the defendant Stedman Co. has infringed claims 1 to 7, inclusive, of the Redman '528 patent.

31. By its use of the tensionless calender, the defendant Stedman Co. has infringed claims 1 to 3 and 5 to 13, inclusive, of the Redman '530 patent.

32. Defendant by its Answer and by notice pursuant to Section 282, Title 35 U. S. C., has set up a total of some 31 United States and foreign patents and printed publications, together with some five or six alleged prior uses, which are alleged to show anticipation or lack of invention in the subject-matter of the two Redman patents in suit.

33. In none of the prior art is there a disclosure of Redman's normalizer apparatus or the normalizing method.

34. The Cohn et al. patent No. 2,228,001 is the standard Tube-Tex straightline calender and finisher which has been used by the tubular textile industry for many years. Also urged as alleged prior uses is the use of similar machines by the Tubize Chatillion Corporation (Weisler), Signal Knitting Mills (Murphey), and Munsingwear (Anderson). As stated in this Cohn et al. patent, the subject-matter relates to apparatus for finishing tubular knit goods to a specified width with a specified yield by accurate adjustment of the relationship between transverse and longitudinal tension in accordance with known commercial practice. The pressure or finishing rolls 21 of this Cohn et al. patent operate to press and set the cloth at the width to which it was expanded by the spreader and the term "shrinkage" where used in the specification has reference to mill shrinkage with which the mill operation is concerned in obtaining yield and does not refer to the wash or laundering shrinkage of garments made from such fabrics. In another Cohn et al. patent No. 2,589,344, directed to the tensionless

calender, it is stated, referring to such standard practice, "Because of the longitudinal tension which is maintained throughout the steam treatment no shrinkage is permitted, and consequently the fabric is subject to shrinkage when laundered." Operation of machines of Cohn et al. '001 patent in the manner described therein precluded relaxation of the fabric so that the stitches thereof were not repositioned substantially to their original knitted form and the fabric was not restored substantially to its normal condition.

35. The later Cohn et al. patent No. 2,589,344 shows and describes the tensionless calender having mechanism for folding the tubular fabric. The application for this Cohn et al. patent '344 was filed some fourteen months after the application for the '528 patent in suit and, therefore, the Cohn et al. patent '344 is not a reference against the '528 patent. It is also not a reference against the '530 patent in suit. The '530 patent is a division and continuation-in-part of the original application for the '528 patent. All of the subject-matter relating to method which is disclosed in the original application for the '528 patent is included in the disclosure of the '530 patent, and claims 1, 3 and 7 to 11, inclusive, of the '530 patent find full response in the teaching contained in the original application for the '528 patent.

36. The Bates Patent No. 1,789,093 of 1931 is for a machine for drying and finishing tubular textile fabrics. The apparatus comprises a tenter frame or spreader mounted above a cartridge 1 which discharges the hot air through a nozzle 4 to the inside of the tubular fabric as the fabric passes over the spreader so that the fabric is stretched widthwise and dried at the same time. As the stretched and dried tubular fabric leaves the spreader, it passes through finishing rolls 33, 36 and is rolled up on removable roll 47 inserted in slots 48 in the side frames

of the machine. The Bates patent teaches nothing about shrinkage or how the Bates apparatus might possibly be used to reduce the residual wash shrinkage in tubular knitted fabrics which have been stretched and elongated lengthwise and narrowed widthwise by wet processing. In the Bates patent, there is no teaching of any means or method of internally expanding tubular knitted fabric widthwise to effect lengthwise shortening or condensing of the fabric, no teaching of relaxation of the fabric, and no teaching of repositioning the stitches substantially to their original knitted form and restoring the fabric to its normal condition. To the contrary, by stretching the tubular fabric and drying the fabric while it is held out in stretched position as the Bates patent states, the tubular knitted fabric is set in the stretched condition thereof and, therefore, cannot relax.

37. The Murphy Patent No. 941,164 (1909) is a machine for turning and winding tubular fabrics. The apparatus of this patent comprises a turning tube 2 which is an old and well-known instrument in the tubular textile fabric field for turning inside out a long length of tubular fabric. As stated in the patent, the size of the spreader 14 corresponds with the particular size of the tubular knitted fabric being processed. The tubular fabric is not expanded widthwise beyond its flat width so that there is no lengthwise shortening or condensing of the fabric, and hence no relaxation of the fabric.

38. The Harder Patent No. 448,817 (1891) is an early recognition of the cause of lengthwise shrinkage in tubular knitted fabrics and discloses an unsuccessful attempt to solve that problem. In Harder, the tubular knitted fabric in dry condition is drawn upwardly over a spreader by a roll B_2 and is wound-up on a roll B. As the tubular knitted fabric passes over the spreader, it is dampened by steam discharged internally of the tubular fabric. The dampened

fabric is expanded and stretched widthwise and is held in such expanded position by the guide A_2 until the fabric reaches the feed roll B_2 so that it is wound on the take-up roll B in its stretched and dampened condition and is allowed to remain in the roll until dry. In Harder's arrangement, there can be no relaxation of the fabric. The tubular knitted fabric is wound up in its dampened and stretched condition and is held in that condition in the roll while it is drying so that it is set to width and there is no chance for the fabric to relax. This is borne out by the experience of Proctor & Schwartz, Inc., with respect to the experimental normalizer shown in Defendant's Exhibits 75, 75-A. The Proctor & Schwartz machine had a roll-up arrangement substantially identical to both Harder and Bates and this was not successful because the tubular fabric was not afforded an opportunity to relax.

39. The German Patent No. 297,240 of 1915 to Jahreis relates to a spreading and stretching mechanism for woven tubular Tricot goods and the purpose of the device is to stretch to a desired length and width Tricot goods which have been shrunk due to washing, conditioning, centrifuging, etc. prior to calendering and beaming them. The patent is concerned with "yield" of the fabric; that is a definite width and length for a given weight of fabric. According to this patent, means is provided for automatically controlling the feed of the fabric in response to variations or fluctuations in tension in the fabric. The patented machine incorporates both a widthwise tensioning means in the form of a spreader and a separate lengthwise tensioning mechanism, the objective of the patent being accomplished by a proper coordination of these two tensioning means to give the desired fabric yield. The patent does not contemplate use of the machine without the lengthwise tensioning means. This German patent is not concerned with reduction of wash shrinkage in tubular knitted fabric. To the contrary, the fabric is tensioned lengthwise while

it is spread widthwise in order to produce the desired "yield." There is no internal expansion of the fabric while it is free to come up lengthwise to effect lengthwise shortening or condensing of the fabric, and there is no relaxation of the fabric.

40. The German Patent to Gessner No. 689,671 of 1940 is primarily concerned with the provision of a pre-tensioner of particular construction in front of a spreader which is employed to spread and stretch tubular fabric to the required size. The pre-tensioner, a round semi-spherical body 13, is positioned ahead of the spreader frame 7 and operates to extend the tubular fabric uniformly in all directions and feed it to the spreader frame 7 with a certain pre-tension. After the tubular fabric passes over the spreader frame 7 it passes between the feed rolls 4 and is wound up as indicated at 8. The Gessner German patent says nothing about use of the apparatus for the reduction of shrinkage in tubular knit fabrics. The roll-up in this German Gessner patent is the same functionally and structurally as the roll-up in the Bates and Harder patents and does not permit relaxation of the tubular knitted fabric as it came off the spreader. The German Gessner patent does not disclose the internal expansion of tubular knitted fabric while it is free lengthwise to shorten or condense the fabric lengthwise and does not teach the relaxation of the tubular knitted fabric after it has been expanded widthwise to shorten or condense it lengthwise.

41. The German Patent of Weisbach No. 655,338 (1938) relates to a method for stretching and drying tubular fabrics by a device commonly known in the art as a suction cylinder drier. The stated objective and purpose of the patented apparatus is to spread the fabric to a required width and then hold it in its spread condition by means of a blanket during drying. The cylinder or drum 1 is perforated and as the drum 1 rotates the tubular knitted fabric

is held against the surface of the drum by the belt or follower 2 and is dried by means of hot air which is drawn through the belt and fabric by means of a suction fan. The stated purpose of the holding belt or follower 2 is to hold the fabric against the cylinder and assist the suction in preventing shrinking of the tubular knitted fabric during the drying operation on the cylinder of the machine. During drying on the cylinder, the fabric is not free to relax and reposition the stitches of the fabric substantially to their original knitted form and restore the fabric substantially to its normal condition. The shrinkage referred to in the Weisbach German patent has reference to mill shrinkage or yield—not laundry or wash shrinkage.

42. The German Patent of Conzelman No. 742,075 of 1943 relates to a stretching mechanism for wet tubular woven and knitted fabrics. The patent is particularly concerned with the construction and arrangement of a so-called pre-tensioner device which is mounted ahead of the spreader. The tubular knitted fabric is drawn upwardly over the pre-tensioner and spreader by means of driving rolls 7 and upper guide rolls 8 and 9. The patent discloses no variable speed relationship between the rolls 7, 7 and the upper guide rolls 8, 9 so that the fabric is stretched in length at the same time that it is spread in width. The fabric is not permitted to relax and there is no repositioning of the stitches or restoration of the fabric to its normal condition as taught by the patents in suit.

43. The Hunt British Patent No. 212,369 of 1924 relates to apparatus for stretching and finishing tubular fabrics wherein the tubular fabric is expanded to the required width and then passed through calendering rolls which press and set the fabric in its expanded form. Since the calendering rolls press the fabric and set it to its expanded width, the fabric cannot relax, and this British patent does not disclose any means or method capable of

repositioning the stitches of the fabric substantially to their original knitted form and restoring the fabric substantially to its normal condition.

44. The Hunt British Patent No. 159,335 of 1921 has for its object the provision of a novel arrangement for supplying steam for dampening the tubular knitted fabric being processed on apparatus such as that shown and described in an earlier British patent No. 122,603. In this earlier patent, the tubular fabric is expanded widthwise and pressed and set to its expanded width so that it is held out in width and does not relax. This is the case also with respect to the British patent No. 15,957 of 1908 which relates to the wide stretching of tubular fabrics and the immediate winding up of the tubular fabric so that it is held and set to the wide stretched width thereof.

45. The French Patent No. 786,426 of 1935 is a combination of a tenter or spreader and cylinder drier or calender especially designed and adapted for shrinking fabrics in flat open form and not in the tubular form of the two Redman patents in suit. In this French patent, there is no spreader for internally expanding knitted fabric in *tubular* form and it does not appear from the patent that it has anything to do with the subject-matter of the two Redman patents in suit. The patent points out that lengthwise shrinkage of flat or open fabric is accomplished by the tentering frame and that widthwise shrinkage of the fabric is accomplished on the endless belt cylinder. According to the patent, the selvage edges of the open or flat fabric are grasped and carried along by the divergent wheels of the tenter frame which function to spread the flat fabric widthwise. The fabric then is delivered by the tenter wheels between a pair of belts which carry the fabric to the calender cylinder. The fabric is overfed to the calender cylinder in the form of undulations or pleats in which condition it is held by a continuous belt or blanket

against the rotating calender cylinder. The two-stage operation of this French patent in connection with *open* or flat fabrics (not tubular fabrics) wherein lengthwise shrinkage is accomplished in a first stage on the Palmer-type tenter wheels and widthwise shrinkage accomplished in a second stage with the fabric in rippled or pleated form on the calender cylinder, does not teach Redman's invention of the two patents in suit in which the fabric in *tubular* form is internally expanded widthwise and then given complete freedom to relax and seek its own equilibrium, whereby to reposition the stitches of the fabric substantially to their original knitted form and restore the fabric susbtantially to its normal condition.

46. Textile Series Report No. 57 of the Office of the Quartermaster General is a report of studies made in the field of shrinkage in garments made from tubular knitted fabrics. The study was based on the work of the Underwear Institute and the Redman Trust and the section on Pre-Shrinking, pages 18 and 19, is a summary of Redman's work at Spring City Bleach and Dye Works in the development of the inventions of the two Redman patents here in suit. This report is dated June 1949 which is much later in time than Redman's date of invention, as well as the filing date of October 22, 1948 of the application for the '528 patent in suit, of which the '530 patent in suit is a division and continuation-in-part. It is not a good reference against the two patents in suit.

47. The Rayon and Synthetic Yarn Handbook dated 1934 describes the Tube-Tex wet processor or extractor (see Finding No. 53), and page 303 shows a dryer of the type shown in the Bates patent (Finding No. 36), the entire system being operated as stated at page 304 so that "'yield' is controlled and all moire is eliminated". There is no disclosure in this publication similar to Redman's apparatus and method for internally expanding tubular

knit fabric widthwise while it is free to shorten and condense lengthwise followed by freedom of the fabric to relax and reposition the stitches substantially to their original knitted form and restore the fabric substantially to its normal condition.

48. The publication "Silk and Rayon" of 1946 discloses a calender for tubular rayon fabric finishing in which the tubular fabric is spread wide and then set or ironed at the spread width. As stated on the second page of the publication "the fabric is pressed whilst hot and moist (it is previously dampened to a suitable degree) and it is thus set as regards its dimensions and the smoothest of its surface". No opportunity is afforded the fabric to relax.

49. "Textile World", for December 1941, is an editorial answer to a question raised with respect to shrinkage in knitted rayons, and merely expresses the opinion that the shrinkage in length of these fabrics is due to their not having been spread wide enough in the calendering operation. The publication contains no disclosure or teaching of how wide the fabric should be spread to substantially reduce the shrinkage, much less is there any teaching that the tubular knitted fabric should be expanded widthwise sufficiently to effect lengthwise shortening or condensing of the fabric and then be permitted to relax according to the inventions of the two Redman patents in suit.

50. The Quillitsch [sic] articles (Def's Exs. 54D, E, and F) consist of a series of articles which contain a number of tables for spreading different types of tubular knitted fabrics in accordance with standard commercial finishing practice. The spreader widths given in the tables are very small—in most instances, less than the diameter of the knitting machine head. Defendant's expert, Lawson, testified that the spreader widths are too narrow to give the desired results.

51. The publication "Trends in Knit Goods" by Walmsley, dated January 1949, is subsequent to Redman's date of invention and the filing date of the '528 patent in suit, of which the '530 patent in suit is a division and continuation-in-part. This publication shows and describes a typical suction cylinder drier of a construction and operation similar to the Weisbach German patent (Finding No. 41).

52. The publications of the "Grand Rapids Textile Machinery Company" show and describe standard type finishing equipment used by the tubular textile industry for many years. In the operation and construction of the machine shown and described in Def's Ex. 55 (1928) live steam dampens the fabric and the heated rolls iron out the wrinkles, set the stitch and effect the finish. There is no teaching of spreading the fabric widthwise to shorten or condense it lengthwise, and the fact that the machine irons and sets the stitches of the fabric as stated, precludes any relaxation of the fabric. Def's Ex. 55A published in 1925 shows simply a number of forms of spreader devices. It teaches nothing with respect to reducing the shrinkage in tubular knit fabrics must less anything relevant to the apparatus and method of the two Redman patents in suit. The Circular 828 entitled "The Shields System" (Def's Ex. 55B) published in 1925 illustrates and describes the Shields upright steaming and rolling machine. This is a machine similar in construction and operation to the Harder U. S. patent (Finding No. 38). In the operation of this machine, the tubular knitted fabric is steamed to dampen it as it passes over the spreader which expands the fabric to the desired width and the expanded fabric is then rolled up in stretched or expanded condition so that there is no possibility of relaxation. Def's Ex. 55C, of 1925, shows and describes a conventional turning and loading machine which has been employed in the tubular textile industry for many years for turning inside-out a long

length of tubular knitted fabric. This has no relevancy to the subject-matter of the two Redman patents in suit. Def's Exs. 55D, E, and G, published in 1934, illustrate and describe the well-known commercial practice of spreading wet tubular knitted fabric widthwise, for example, 3 to 5 inches larger than the knitting machine head as stated in the publication, and then rolling the fabric up while it is held to its stretched width so that it cannot relax. The Grand Rapids publications (Def's Exs. F and G) published respectively in 1928 and 1925, disclose the standard commercial finishing practice. There is no teaching in these particular publications of the concept of substantial widthwise expansion of tubular knitted fabric followed by release of the fabric to permit it to relax both widthwise and lengthwise and thereby seek its own equilibrium. To the contrary, these publications specifically state that the tubular fabric is spread simply to open it up to the same condition from which it came from the knitting machine free from tension, that is to the width of the griege fabric in relaxed condition after it comes off the knitting machine. This is insufficient to effect lengthwise shortening or condensing of the fabric so that upon relaxation of the fabric the stitches thereof will be repositioned substantially to the original form and the fabric will be restored substantially to its normal condition. The circular entitled "Universal Calender and Folder" (Def's Ex. 55J) published prior to 1935 shows and describes the same equipment as Def's Ex. 55, and has nothing to do with spreading tubular fabric to normalize and then relax it.

53. The alleged prior use of the Tube-Tex Wet Extractor or Processor by Signal Knitting, Munsingwear, Beaunit, and others does not show lack of invention of the two Redman patents in suit. In the Tube-Tex Wet Processor or Extractor wet tubular knit fabric is drawn over a spreader and passes between a first set of squeeze rolls which wring as much moisture as possible from the wet

fabric. The first set of squeeze rolls tends to set the fabric at the width to which it was spread. The fabric then is treated with processing liquid and passed through a second set of squeeze rolls which wring from the fabric the excess processing material and again set the fabric. The prior commercial use in the industry of the Tube-Tex Wet Extractor or Processor did not employ or teach Redman's concept of spreading tubular knitted fabric widthwise to shorten or condense it lengthwise and then permitting the fabric to relax and seek its own equilibrium thereby to reposition the stitches and restore the fabric substantially to its normal condition.

54. The first tensionless calender constructed by Tubular was a sample machine which was retained by Tubular for demonstration purposes. In April 1949, this machine was demonstrated to Dunmore of Utica and King of Munsingwear, and photographs of the machine were exhibited to others at the Knitting Arts Exhibition at Atlantic City at the end of April 1949. Tubular did not propose to lease or sell the demonstration machine. It was definitely not for sale or lease. At that time, the demonstration machine was the only such machine in existence and no machines were in stock ready for delivery. The first machine built for "sale" was built after the receipt by Tubular of an order from Utica on May 29, 1949.

55. The Tube-Tex experimental pre-shrinking machine was not successful and was abandoned. It taught nothing with respect to the inventions of the two patents in suit. The fabric was fed to the experimental machine in flattened tubular form at approximately the width of the spreader which had parallel sides and did not operate to expand the fabric widthwise to shorten and condense it lengthwise. From the spreader, the fabric passed between calender rolls which set the fabric at the spreader width so that fabric could not relax and seek its own equilibrium.

56. None of the prior patents, publications, and alleged prior uses discloses or embodies the Redman inventions of the two patents in suit. Defendant has failed to establish that the apparatus and method of the patents in suit were obvious, at the time the inventions were made, to a person skilled in the treatment of tubular knit goods. The Redman inventions were not anticipated and were a valuable innovation requiring invention beyond the ordinary skill of the art.

Conclusions of Law.

1. The Court has jurisdiction of the subject-matter of this action and of the parties hereto.

2. The Redman patent No. 2,597,530 is entitled to the filing date of the original application for the Redman patent No. 2,597,528 as to claims 1 to 3 and 7 to 11, inclusive, of said Patent No. 2,597,530.

3. The tensionless calender of Tubular Textile Machinery Corporation, Woodside, Long Island, New York, was not on sale prior to May 1, 1949, or more than one year prior to the filing of the application for the Redman patent No. 2,597,530 on May 1, 1950.

4. The Redman patent No. 2,597,528 is good and valid in law.

5. The Redman patent No. 2,597,530 is good and valid in law.

6. The defendant, Stedman Manufacturing Company, has infringed claims 1 to 7, inclusive, of patent No. 2,597,528 and claims 1 to 3 and 5 to 13, inclusive, of patent No. 2,597,530 by the use within this District of a tensionless calendar manufactured and leased to defendant by Tubular Textile Machinery Corporation of Woodside, Long Island, New York.

7. The determinations of validity of the two Redman patents in suit and infringement thereof are effective and binding upon the defendant, Stedman Manufacturing Company, and upon the manufacturer and lessor of the equipment, Tubular Textile Machinery Corporation.

8. Judgment may be entered awarding plaintiffs damages and costs and ordering an accounting to ascertain and determine the amount of damages.

9. That a permanent injunction shall issue under the seal of this Court directed to the defendant, Stedman Manufacturing Company, and to Tubular Textile Machinery Corporation, and to each of them, enjoining each of them and their officers, agents, representatives, employees, and attorneys, and all those in privity and participation with them, and each of them, from infringing said patents Nos. 2,597,528 and 2,597,530, or either of them, during the life of said patents, respectively.